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Buffalo, New York 14225**

**CALSPAN ON-SITE AIR BAG/CHILD FATALITY INVESTIGATION**

**CALSPAN CASE NO. 96-15**

**VEHICLE - 1995 MAZDA PROTÉGÉ'**

**LOCATION - OHIO**

**CRASH DATE - [REDACTED], 1996**

**Contract No. DTNH22-94-D-07058**

**Prepared for:**

**U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, DC 20590**



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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness of the involved vehicle(s) or their safety systems.

## TECHNICAL REPORT STANDARD TITLE PAGE

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<b>16. Abstract</b> <p>This on-site investigation focused on a three-vehicle front-to-rear crash that resulted in the death of [REDACTED] day old male infant. The infant was secured in a rearward-facing Evenflo Joyride child restraint that was positioned in the right front of a 1995 Mazda Protégé'. The Mazda was equipped with driver and passenger side air bags which deployed as a result of the crash.</p> <p>The deploying passenger side air bag contacted and fractured the leading edge of the plastic shell of the infant restraint. The infant was restrained in the child restraint by the integral 3-point harness system. His head was presumably positioned at the upper area of the restraint and as a result of air bag contact, the infant sustained skull fractures with severe brain swelling that resulted in brain death.</p> <p>The infant was transported from the scene by ambulance to a children's hospital where he was mechanically supported for approximately 48 hours prior to his death.</p>			
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**CALSPAN ON-SITE AIR BAG/CHILD FATALITY INVESTIGATION**

**CALSPAN CASE NO. 96-15**

**VEHICLE - 1995 MAZDA PROTÉGÉ'**

**LOCATION - OHIO**

**CRASH DATE - [REDACTED], 1996**

This investigation was initiated in response to a notification received from the National Highway Traffic Safety Administration (NHTSA) that a 29 day old male child passenger of a 1995 Mazda Protégé' was fatally injured in a three vehicle front-to-rear crash. The [REDACTED] of Michigan Transportation Research Institute (UMTRI) notified the NHTSA of the crash, which in turn notified Calspan's Special Crash Investigation Team on [REDACTED], 1996. A Crash Reconstructionist initiated the on-site investigation on [REDACTED], 1996.

**SUMMARY**

This on-site investigation focused on a [REDACTED] old infant who was positioned in a rear-facing child restraint that was secured in the right front of a 1995 Mazda Protégé. The Mazda was equipped with driver and passenger side air bags which deployed as a result of the vehicle's front-to-rear impact sequence with a 1995 Chevrolet Monte Carlo. The Chevrolet was then displaced forward into the rear of a 1993 Honda Accord. The deploying passenger side air bag expanded against the upper rear aspect of the child restraint's shell, accelerating the restraint rearward with respect to the vehicle. As a result of the deployment, the infant sustained closed head injuries with brain swelling and expired within 48 hours of the accident. The crash occurred in a temporary construction zone on an interstate highway entrance ramp during daylight hours in [REDACTED], 1996. The acceleration lane and two outboard lanes of the interstate were channeled into the two inboard lanes by the placement of numerous construction barrels. The construction zone had been removed and normal traffic restored prior to Calspan's on-site investigation.

The 1995 Mazda Protégé was purchased as a used vehicle by the 23 year old female driver. Inspection revealed the vehicle had previous damage to leading edge of the right front fender which had been repaired with body filler and repainted. The extent and nature of the damage was unknown. Additionally, the Mazda had previous sideswipe damage to both rear bumper corners and the right rear door. The vehicle was equipped with a Supplemental Restraint System (SRS) that consisted of driver and passenger side air bags. The front bucket seat positions were equipped with manual continuous loop 3-point lap and shoulder belts. The belt systems were equipped with an energy management loop located above the floor anchorage and an adjustable upper anchorage (D-ring). The Mazda was manufactured in [REDACTED] 1994 and was identified by the following vehicle identification number (VIN) JM1BA1416S0 (production sequence deleted).

The driver of the Mazda was entering the interstate northbound from the two-lane on-ramp in an active construction zone. Traffic flow was diverted by a series of construction barrels along both edges of the modified on-ramp. A yield sign at the mouth of the on-ramp regulated traffic flow. Heavy traffic volume resulted in a backup of vehicles entering the interstate. A lead vehicle, not involved in the accident, apparently stopped at the mouth of the acceleration lane. A 1993 Honda Accord (Vehicle #3) stopped behind the lead vehicle. The driver of the Mazda was traveling on the ramp and was looking to her left for approaching interstate traffic. A Chevrolet Monte Carlo (Vehicle #2) was traveling ahead and to the right of the Mazda. The driver of the Chevrolet merged left, ahead of the Mazda, as the driver's attention was diverted to the left. The driver of the Chevrolet Monte Carlo braked rapidly to avoid contact with the stopped Honda. The driver of the Mazda Protégé estimated her speed at 32 km/h (20 mph) as she traveled on the ramp through the construction zone. As she redirected her attention forward, she detected the stopped Monte Carlo and braked in an attempt to avoid impact.

The right frontal area of the Mazda impacted the left rear area of the Chevrolet's rear bumper. Due to the pre-impact braking of the Mazda, the front bumper of the Protégé impacted and underrode the Chevrolet's rear bumper resulting in a 12 o'clock/6 o'clock impact configuration. As a result of the underride, residual bumper crush was minor with 1.4 cm (0.5") of displacement at the right corner. The right side of the radiator support panel and the leading edge of the right front fender engaged against the rear bumper of the Monte Carlo which resulted in 19.3 cm (7.6") of rearward displacement of the sheetmetal components. Direct contact damage began 16.3 cm (6.4") right of the Mazda's centerline and continued 56.1 cm (22.1") to the vehicle's right front corner. The CDC for the Mazda was 12-FZMW-01. The impact separated the Chevrolet's rear bumper fascia from the reinforcement bar. The left corner of the reinforcement bar was crushed forward 32.9 cm (13.0 in). The direct contact damage began 10.2 cm (4.0") left of vehicle's centerline and extended 59.7 cm (23.5 in) to the left rear corner. The CDC for the Chevrolet was 06-RYEW-02. The damage algorithm of the SMASH program computed velocity changes (delta V) of 25.8 kph (16.0 mph) for the Mazda and 19.0 kph (11.8 mph) for the struck Chevrolet. As a result of the impact induced deceleration, the Mazda's driver and passenger side air bags deployed.

Following the initial impact, the Chevrolet was displaced forward and struck the rear of the stopped Honda Accord. This secondary impact resulted in minor displacement of the Honda's rear bumper fascia. There was no residual damage to the front bumper of the Chevrolet.

The driver of the Mazda was a 23 year old female with a stated height of 157.4 cm (62.0 in) and weight of 62.3 kg (145.0 lb). She was in a normal upright seated position at impact with her seat adjusted to a mid-track position, 12.1 cm (4.75 in) from full forward. She was not wearing the available manual 3-point lap and shoulder belt system. (It should be noted that an arrest warrant had been issued for the Mazda driver for failure to appear to answer a summons on a prior seat belt violation.) At impact, she initiated a forward trajectory into the path of the deploying driver side air bag. The lower left segment of the air bag contacted the anterior aspect of her neck and chin which resulted in a large soft tissue abrasion (AIS-1). A corresponding large tissue transfer

was noted on the left lower quadrant of the driver side air bag. In addition to the facial and neck abrasions, the driver sustained abrasions (AIS-1) to the anterior aspect of both wrists from the expansion of the bag.

The right front occupant of the Mazda was a [REDACTED] day old male infant positioned in a rear-facing Evenflo Joyride child restraint. The restraint was mounted to an Evenflo Travel Tandem base that elevated the restraint on the vehicle's seat cushion. The driver stated that she had secured the infant into the child restraint with the integral 3-point harness and that the child restraint was secured to the vehicle by vehicle's 3-point restraint. Based on the instructional label that was affixed to base unit, the driver (mother) had probably improperly routed the belt through the upper loops of the child restraint and not through the base unit. A locking clip was found attached to the base unit and had not been used. Immediately following the crash, the mother unfastened the vehicle's belt system from the child restraint and rotated the child restraint on the seat cushion. Therefore, the investigating officer could not verify restraint use at the scene of the crash.

Prior to impact, the driver of the Mazda applied a braking force in an attempt to avoid the crash. This deceleration displaced the child restraint in a forward direction. This resulted in contact between the back of the child restraint and the leading edge of the right side instrument panel. This contact sequence was evidenced by gray vinyl transfers on the vertical reinforcements on the back of the child restraint and abrasions to the leading edge of the instrument panel. This movement placed the child restraint within close proximity of the passenger side module cover flap. The module was a mid-mount design with a cover flap hinged at the top, allowing the flap to open in an upward rotation. The leading edge of the cover flap contacted the upper aspect of the child restraint during deployment. This was evidenced by vinyl transfers to the leading edge of the cover flap. The flap then continued upward, fracturing the windshield and producing vinyl transfers on the glazing.

The module cover flap and deploying non-tethered air bag fabric subsequently contacted the back of the child restraint and fractured the plastic shell. Three fractures were documented: the first was located on the upper segment at the top of the compartment door, the second was located at the base of the right outboard vertical reinforcement, and the third was located at the compartment door hinge point. The deployment of the air bag probably displaced the child restraint rearward into the right front seat back. There was no contact evidence to support this sequence. As a result of the air bag deployment, the infant sustained multiple skull fractures (AIS-2) and brain swelling (AIS-3).

Immediately following the crash, the driver unbuckled the manual belt system and rotated the child restrained in a counterclockwise direction on the right front seat cushion. She exited the vehicle and placed the child restraint on the hood of the Mazda. The driver of the Honda Accord provided a cellular telephone to the driver of the Mazda for notification of emergency personnel to the crash scene. An off-duty nurse was traveling behind the Mazda and witnessed the crash. She assisted the driver in removing the integral harness from the infant, however, they did not remove the infant from the child restraint. The infant sustained a closed head injury that resulted

in swelling of the head at the crash scene. The mother noted swelling over the eyes and to the right side of the head. Paramedics arrived on-scene and removed the infant from the child restraint and prepared him for ambulance transport.

The child was transported by ambulance to a local pediatric hospital where he was mechanically supported for approximately 48 hours prior to his death. Although the driver consented to a formal interview, she declined to authorize the release of the infant's medical records. No autopsy was performed.

**CALSPAN ON-SITE AIR BAG/CHILD FATALITY INVESTIGATION**  
**CALSPAN CASE NO. 96-15**  
**VEHICLE: 1995 MAZDA PROTÉGÉ'**  
**LOCATION: OHIO**  
**CRASH DATE: [REDACTED], 1996**

**CRASH DATA**

Location:	Entrance ramp to a 4-lane interstate highway that was under temporary construction with the two right travel lanes channeled into the two left lanes by construction barrels.
State:	Ohio
Area/Type:	Urban/Commercial
Accident Date/Time:	[REDACTED], 1996, daylight hours
Investigating Police Agency:	[REDACTED]
Accident type:	3 vehicle front-to-rear crash
Air Bag Vehicle Occupant	Driver - Minor (AIS-1)
Injury Severity:	Right front - Fatal (AIS-3)

**AMBIENCE**

Viewing Conditions:	Daylight
Weather:	Clear
Precipitation:	None
Road Surface:	Dry

**HIGHWAY**

Type:	Interstate roadway entrance ramp
Number of Lanes:	Ramp - 1 lane Roadway - 2 lane (temporary)
Width:	Ramp - 7.6 m (25.0 ft), wider at POI
Surface:	Concrete
Median:	Grass
Edge:	Construction barrels, concrete median barrier, grass



## **HIGHWAY (CONT'D.)**

Vertical Alignment:	Level
Horizontal Alignment:	Entrance ramp - Gradual right curve
Estimated Coefficient of Friction:	0.72 (police estimate)
Traffic Density:	Heavy

## **TRAFFIC CONTROLS**

Signals:	None
Signs:	Yield sign at ramp emergence with traffic lanes
Markings:	Broken white lane dividers, construction barrels marking the entrance ramp boundaries onto the two inboard northbound travel lanes
Speed Limit:	89 kph (55 mph), 72 kph (45 mph) advisory for construction zone

## **VEHICLES**

### **Air Bag Vehicle**

Description:	1995 Mazda Protégé', 4 door sedan
V.I.N.:	JM1BA1416S0 (Production number deleted)
Date of Manufacture:	7/94
Color:	Blue
Odometer:	52,024 km (32,327 miles)
Engine:	L4, 1.5 liter
Transmission:	Automatic, floor mounted shifter
Steering:	Power-assisted
Brakes:	Power-assisted front disc
Padding:	Upper and mid instrument panel, glove compartment door, soft-edged steering wheel rim and air bag module covers, door panels, door armrests, sunvisors, adjustable head restraints
Manual Restraints:	3-point lap and shoulder belt systems, inertia activated locking retractors with continuous loop belt webbing through the latch plate in the front outboard seated positions
Automatic Restraints:	Supplemental driver and passenger side air bags which deployed as a result of the crash

## **VEHICLES (CONT'D.)**

Defects: None  
Tow Status: Towed due to vehicle damage

### **Vehicle #2**

Description: 1995 Chevrolet Monte Carlo LS, 2-door coupe  
V.I.N.: 2G1WW12MXS9 (Production number deleted)  
Date of Manufacture: /95  
Color: Purple  
Odometer: 25,704 km (15,972 miles)  
Engine: V6, 3.1 liter, MFI  
Automatic Restraints: Driver and passenger side airbags  
Defects: None  
Tow Status: Towed due to vehicle damage

### **Vehicle #3**

Description: 1993 Honda Accord, 4-door  
V.I.N.: 1HGCB7699PA (Production number deleted)  
Color: Green

## **VEHICLE DAMAGE**

### **Exterior:**

#### **Air Bag Vehicle**

The right frontal area of the Mazda struck the left rear bumper of the Monte Carlo. Due to the pre-impact braking of both vehicles, the front bumper of the Mazda underrode the rear bumper of the Monte Carlo. The Mazda sustained direct contact damage which began 16.3 cm (6.4 in) right of center and extended 56.1 cm (22.1 in) to the right corner. The front bumper was crushed 1.4 cm (0.5 in) at the right corner. However, the right corner of the upper radiator support panel and the leading edge of the right front fender was crushed to a maximum value of 19.3 cm (7.6 in). Crush values measured at the upper radiator support were as follows: C<sub>1</sub>= 2.3 cm (0.9 in), C<sub>2</sub>= 5.4 cm (2.1 in), C<sub>3</sub>= 6.0 cm (2.4 in), C<sub>4</sub>= 10.8 cm (4.3 in), C<sub>5</sub>= 19.3 cm (7.6 in), C<sub>6</sub>= 15.6 cm (6.1 in).

Components damaged in the crash included the right front bumper fascia, the hood, the right front fender, the upper radiator support panel, and the windshield.

## **VEHICLE DAMAGE (CONT'D.)**

**CDC:** [REDACTED]

**Repair Cost:** estimate \$3000

### **Exterior:**

#### **Vehicle #2**

The Monte Carlo sustained moderate damage that resulted from the rear-end impact sequence with the Mazda Protégé'. The rear bumper fascia of the Monte Carlo was separated from the reinforcement bar and fractured. The left corner of the rear bumper reinforcement bar was crushed to a depth of 32.9 cm (13.0 in). The direct contact damage began on the rear bumper fascia 10.2 cm (4.0 in) left of center and extended 59.7 cm (23.5 in) toward the left rear corner.

The crush profile was documented at the rear bumper reinforcement bar level across its full width of 125.7 cm (49.5 in) and was as follows: C<sub>1</sub>= 32.9cm (13.0 in), C<sub>2</sub>=28.1 cm (11.1 in), C<sub>3</sub>=19.1 cm (7.5 in), C<sub>4</sub>=11.2 cm (4.4 in), C<sub>5</sub>=4.3 cm (1.7 in), C<sub>6</sub>=0.0 cm (0.0 in). These values represent the actual residual crush profile with the free space and filler panel width deducted from the field measurement.

**CDC:** [REDACTED]

**Repair Cost:** estimate \$2000

### **Interior:**

#### **Air Bag Vehicle**

Interior damage to the Mazda was associated with deployment of the dual air bag system and the impact induced occupant contacts. There was no interior damage associated with the exterior deformation or intrusion. Driver contact was limited to interaction with the deploying driver side air bag, evidenced by a large tissue transfer on the air bag face (refer to Photograph No. 26). There was no other contact evidence on the left front interior components of the vehicle.

The child restraint contacted the mid instrument panel below the passenger side air bag module during pre-impact braking, scuffing the leading edge of the instrument panel in two locations. Two 5.1 cm (2.0 in) vertical contact marks from the back struts of the child restraint shell were located 21.0-22.2 cm (8.25-8.75 in) and 43.8-45.1 cm (17.25-17.75 in) right of center (refer to Photograph Nos. 62 through 67). With the child restraint in this forward position, the module cover flap contacted the back of restraint, fracturing the restraint shell during initial deployment. The module cover flap then continued its upward rotation, contacting and fracturing the windshield (refer to Photograph No. 49).

## **VEHICLE DAMAGE (CONT'D.)**

### **Interior (Cont'd):**

The windshield glazing was cracked in two areas. One of the spider web-type fractures was located 14.0 cm (5.5 in) above the instrument panel and 20.3 cm (8.0 in) right of center and the other was located 15.9 cm (6.25 in) above the instrument panel and 47.0 cm (18.5 in) right of center. The upper boundary of the fractures was 6.4 cm (2.5 in) below the header and extended downward to 26.7 cm (10.5 in) above the instrument panel. A vertically oriented vinyl transfer extended across the windshield between the two fractures (refer to Photograph No. 56). The transfer started 14.6 cm (5.75 in) right of center and 8.9 cm (3.5 in) above the top of the instrument panel and extended horizontally 33.5 cm (13.2 in) to the right to a point 6.4 cm (2.5 in) above the top of the instrument panel. Air bag fabric transfers on the windshield started 2.5 cm (1.0 in) left of the center and extended to the right 7.0 cm (2.75 in) inboard of the right A-pillar. The rear view mirror was canted to the left by the deploying passenger side air bag but was not damaged. An air bag transfer 5.1 cm (2.0 in) wide and 6.4 cm (2.5 in) high was noted on the right side of the back of the rear view mirror, (reference Photograph No. 60). The right sunvisor was deformed at the outboard hinge point as a result of contact by the handle of the child restraint as it was pushed upward by the air bag module flap and deploying air bag, (refer to Photograph No. 58). The passenger side air bag exhibited evidence of contact (transfers) with the back of the rear-facing child restraint. The glove box door was open at the time of the investigation.

## **AUTOMATIC RESTRAINT SYSTEM**

The 1995 Mazda was equipped with a Supplemental Restraint System (SRS) that consisted of dual driver and passenger side air bags which deployed as a result of the crash with the Monte Carlo. The driver side air bag was incorporated into the steering wheel hub assembly in a typical configuration while the passenger side air bag was mounted into the mid right instrument panel.

The driver side air bag deployed as designed from an H-configuration asymmetrical air bag module cover assembly that was contained within the four-spoke steering wheel. The H-configuration flaps were hinged at the top and bottom with a horizontal center tear seam and vertical perimeter seams that narrowed toward the hinges. The module upper cover flap had an overall height of 6.0 cm (2.4 in) and was 16.8 cm (6.6 in) wide at the center tear seam. At 4.5 cm (1.4 in) above the tear seam the sides of the cover flap tapered inward. The lower module cover flap was also 16.8 cm (6.6 in) wide at the center tear seam. The sides of the flap narrowed 5.1 cm (2.0 in) below the center tear seam. The overall height of the lower cover flap was 8.9 cm (3.5 in). Both cover flaps were 30.0 mm (1/8 in) thick. The words SRS AIRBAG were molded into the lower edge of the upper cover flap. The bag, in its deflated state, was 62.2 cm (24.5 in) in diameter. The bag was vented with two 2.9 cm (1.1 in) diameter ports that were located on the back side of the air

## AUTOMATIC RESTRAINT SYSTEM (CONT'D.)

bag at the 11 and 01 o'clock sectors. The ports were positioned 8.3 cm (3.25 in) outboard of the inflator and 17.8 cm (7.0 in) inboard of the internally sewn peripheral seam. The driver side air bag was not tethered. Identification labeling was stamped on the bag at the 6 o'clock sector and was recorded as follows:



The driver contact evidence on the driver side air bag was a large tissue transfer. The transfer was located in the lower left quadrant of the bag from 2.5 cm (1.0 in) right of center to 14.0 cm (5.5 in) left of center and 8.3-16.5 cm (3.25-6.5 in) down from the center (refer to Photograph Nos. 25 and 26).

The passenger side air bag assembly was a mid mount configuration which followed the contour of the right instrument panel. The module cover flap opened at the designated tear points along the bottom and side surfaces and was hinged at the top which allowed the cover flap to open in an upward direction. The vinyl cover flap measured 34.8 cm (13.7 in) horizontally and the curved vertical surface was 16.5 cm (6.5 in). SRS AIR BAG was molded into the lower center surface of the cover flap. The upper edge of the cover flap was hinged and the flap was reinforced with steel under the vinyl cover. The vinyl cover was secured to the steel reinforcement with fourteen (14) fasteners, (refer to Photograph No. 51). A 30.0 mm (1/8 in) thick, 31.1 cm (12.25 in) wide, and 11.4 cm (4.5 in) vertical rubber pad separated the folded bag from the steel reinforcement of the cover flap. A tag with the letters BCIM was located on the lower left corner of the flap. A sheet of Tyvek material was positioned between the interior surface of the module and cover flap which acted as a protective liner for the folded air bag.

The passenger side air bag module cover flap had abrasive scuffs extending across the full width with the heaviest scuffing at the corners 8.9 cm (3.5 in) above the lower edge of the flap. The leading edge of the passenger side air bag module flap also had a white vinyl transfer which was 6.4 cm (2.5 in) wide starting 13.7 cm (5.4 in) from the left edge of the flap.

The passenger side air bag was constructed of a woven nylon-type fabric with two 4.8 cm (1.9 in) diameter vent ports on each of the side surfaces. The centers of the vent ports were located 24.1 cm (9.5 in) outboard of the inflator. The passenger side air bag was a non-tethered bag with a double row of stitching 2.5 cm (1.0 in) rearward of the inflator and a single row of stitching 13.3 cm (5.25 in) rearward of the double row. Another band of stitching was located 27.9 cm (11.0 in) rearward of the inflator. The rearward extension of the passenger side air bag was 81.3 cm (32.0 in) from the module and 68.6 cm (27.0 in) out from the instrument panel. The vertical height of the bag at the face was 55.9 cm (22.0 in). A bar coded label located at the 6 o'clock position against the inflator was recorded as follows:

## AUTOMATIC RESTRAINT SYSTEM (CONT'D.)

[REDACTED]

A 30.5 cm (12.0 in) vertical large black vinyl transfer was noted on the right side of the passenger side air bag below the right vent port which began 10.2 cm (4.0 in) out from the inflator. The bottom of the air bag revealed 15.2 cm (6.0 in) vertically oriented blue/green cloth transfers from the child restraint cloth cover. The cloth transfers were located 14.6 cm (5.75 in) rearward of the inflator extending over an area from the right seam horizontally left 19.1 cm (7.5 in). In that same area was a 11.4 cm (4.5 in) wide pattern of gray/black vinyl rubber transfers. The transfers extended 53.3 cm (21.0 in) up onto the bottom face of the bag.

## MANUAL RESTRAINTS

The Mazda Protégé' was equipped with manual 3-point lap and shoulder belts in the two front seated positions. The belt systems consisted of a continuous loop lap and shoulder belt webbing with a sliding latch plate. Inertia activated locking retractors were mounted in the base of the B-pillars. The anchors for the lap belts were mounted to the sills of the vehicle. The latch plate of the driver belt had faint wear marks, indicating infrequent usage. The number stamped into the latch plate was 5400 WC. The front restraints had energy management loops which were intact. The driver side adjustable D-ring was in the full up position and the right front D-ring was adjusted to the lowest position (refer to Photograph Nos. 27 through 30 and 61).




## CHILD RESTRAINT

The child safety seat was a rear-facing Evenflo Joy Ride Car Seat/Carrier with a Travel Tandem Base designed for infants weighing from 2-9 kg (5-20 lb.). The manufacturers data was embossed into the plastic shell of the restraint and was as follows (refer to Photograph No. 91):

[REDACTED]

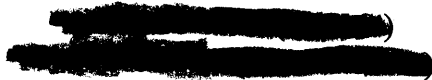
## CHILD RESTRAINT (CONT'D.)

A bar coded label on the restraint was as follows:

  
Manufactured in  96  
Model # 

A label was affixed to the side of the restraint base illustrating the proper routing of the vehicle's belt system for both the center rear and the right front seat positions. Each of these seat positions was portrayed with and without the Joyride installed. (The labels on the restraint expressed all advisories in both English and French.) The child restraint was secured in the right front passenger seat with the manual lap/shoulder belt system. Based on the instruction label that was affixed to the base of the child restraint, the driver (mother) had probably improperly routed the belt through the upper loops of the restraint's shell and not through the base of the restraint (refer to Photograph No. 68). The locking clip used to fix the position of the sliding latch plate was not used.

A storage compartment was manufactured into the upper aspect of the plastic shell of the infant restraint. The door for this compartment was hinged at the bottom and was equipped with a top center plastic tab which served as a latch to access the compartment. Both hinge points for the storage compartment were cracked (refer to Photograph No. 77) and a 2.5 cm (1.0 in) crack was located left of the plastic latch (as viewed from the rear). The following data was embossed into the door panel (refer to Photograph No. 79):

IF INSTRUCTIONS ARE LOST  
OR MISSING CALL EVENFLO  
FOR REPLACEMENT  
  
-CAUTION-  
NEVER LEAVE CHILD UNATTENDED  
-IMPORTANT-  
INSTRUCTIONS IN POUCH - ALWAYS  
REPLACE FOR FUTURE REFERENCE

The infant restraint was equipped with an adjustable carrying handle that was mounted to the mid aspect of the shell.

The infant was restrained in the Evenflo Joyride infant restraint by its integral 3-point harness system. The child safety seat was covered with a thick multi-color padded seat covering made of polyester fiber. A dense 1.9 cm (0.75 in) thick foam padding was under the child's back and head area of the seat. A yellow warning label was adhered to each side of the restraint with the following warning:

## **CHILD RESTRAINT (CONT'D.)**

PLACE THIS INFANT RESTRAINT IN A REAR FACING  
POSITION WHEN USING IN THE VEHICLE

**WARNING:**

DO NOT PLACE THIS RESTRAINT IN THE FRONT SEAT  
OF A VEHICLE THAT HAS A PASSENGER SIDE AIRBAG.  
SERIOUS INJURY OR DEATH CAN OCCUR IF AN AIR BAG  
INFLATES AGAINST A REAR FACING CHILD RESTRAINT.

Both rear vertical reinforcements of the restraint had gray vinyl transfers as a result of contact with the right instrument panel during the vehicle's pre-impact braking (refer to Photograph No. 81 and 82). Viewing the child restraint from the rear, the transfer on the left vertical reinforcement was 4.1 x 1.3 cm (1.6 x 0.5 in) and the transfer on the right vertical reinforcement was 3.8 x 1.0 cm (1.5 x 0.4 in). A 3.8 cm (1.5 in) crack in the plastic shell was located at the lower left of the right vertical reinforcement (refer to Photograph No. 83).

## **COLLISION SEQUENCE**

### **Pre-Crash:**

The 1995 Mazda Protégé' was purchased by the 23 year old female driver as a used vehicle from a rental agency. There was no owner's manual provided with the vehicle at the time of purchase. The driver stated that she never saw the label on the rearward-facing child restraint advising against placement in the right front seat of vehicles equipped with air bags. She further stated that she placed the child restraint in the right front at all times because it provided the most stable location in the vehicle.

The 23 year old female driver of the 1995 Mazda Protégé' (Vehicle #1) and her infant son had gone to a photographer for pictures. After leaving the photographer they were en route to a birthday party. She had positioned her [REDACTED] old male infant in the rearward-facing Evenflo Joyride child restraint, which was installed in the vehicle's right front seat. The restraint was mounted to an Evenflo Travel Tandem base. The child restraint was secured in the vehicle with the manual lap/shoulder belt and the child was secured in the restraint with the integral 3-point harness. As evidenced from the police on-scene photographs, the right front seat was adjusted to approximately 12.1 cm (4.75 in) rearward of the full forward position. The driver was not wearing the manual 3-point lap and shoulder belt system.

The driver of the Mazda was entering the northbound travel lanes of an interstate from the left side of a wide on-ramp in an active construction zone. Due to the temporary



## **COLLISION SEQUENCE (CONT'D.)**

### **Pre-Crash (Cont'd)**

construction, the acceleration lane and the two right travel lanes of the interstate were channeled into the two left lanes. The traffic flow was diverted by a series of construction barrels placed along both edges of the modified on-ramp travel/merge lane. A yield sign regulated traffic flow onto the interstate. Heavy traffic volume resulted in a backup of vehicles attempting to enter the interstate. A lead vehicle (non-contact vehicle) in the right lane of the on-ramp reportedly stopped suddenly at the mouth of the acceleration lane prior to entering the travel lanes. A 1993 Honda Accord (Vehicle #3) behind the lead vehicle then had to brake quickly and stopped. The Chevrolet Monte Carlo (Vehicle #2) was traveling behind the Honda also on the right side of the wide approach to the interstate. The driver of the Monte Carlo braked to a stop to avoid contact with the Honda. The driver of the Mazda Protégé' was traveling at a driver reported speed of 32 km/h (20 mph), behind and to the left of the Monte Carlo. The driver of the Mazda looked to her left to check approaching traffic on the expressway, which she stated was clear, then looked ahead and detected the Monte Carlo stopped immediately in front of her vehicle's right front corner. The driver of the Mazda reacted to the stopped vehicles by rapidly applying the brakes.

### **Crash:**

The braking dynamics caused the Mazda's front suspension to compress lowering the front of the vehicle. At impact, the right frontal area of the Mazda struck the left side of the Chevrolet's rear bumper. Due to the lowered ride height of the Mazda, the vehicle underrode the Chevrolet resulting in the Mazda's primary impact damage to be above the level of the bumper. Resultant directions of force were 12 o'clock for the Mazda and 6 o'clock for the Monte Carlo. The damage algorithm of the SMASH program computed delta V's for the Mazda and Chevrolet at 25.8 kph (16.0 mph) and 19.0 kph (11.8 mph), respectively. The impact induced deceleration was sufficient to deploy the Mazda's supplemental driver and passenger side air bag system.

The impact from the Mazda displaced the Chevrolet forward into the rear of the Honda Accord. This impact resulted in minor damage to the rear bumper fascia of the Honda. There was no residual damage to the front of the Chevrolet. The resultant directions of force were 12 o'clock for the Monte Carlo and 6 o'clock for the Honda Accord.

### **Post Crash:**

#### **Final Rest -**

The Mazda came to rest behind and offset to the right of the Monte Carlo near the point of impact. The Monte Carlo and the Honda Accord also came to rest at or near their point of impact.

## **COLLISION SEQUENCE (CONT'D.)**

### **Post-Crash (Cont'd)**

#### **Driver Activities -**

Immediately following the crash, the driver noted that her child's head had begun to swell above his eyes, primarily on the right side. She rotated the child restraint 90 degrees within the vehicle, unbuckled the manual lap belt, and removed the restraint with the infant secured in it. She placed the restraint on the hood of her vehicle. A nurse who was traveling behind the Mazda, stopped at the crash scene and released the 3-point harness prior to arrival of emergency personnel who had been notified by cellular telephone.

#### **Rescue Activities -**

The police arrived at the scene five minutes after the crash. A fire department medic unit arrived six minutes after the crash and removed the child from the restraint, placed him on a stretcher, and transported him to a nearby pediatric hospital. Arrival at the hospital was 23 minutes after the crash.

#### **Scene Clearance -**

The Mazda and the Monte Carlo sustained disabling damage and were towed from the scene and subsequently impounded by police for the follow-up investigation. The Honda Accord was driven away from the scene.

## **HUMAN FACTORS/OCCUPANT DATA**

### **Air Bag Vehicle**

	<u>Driver</u>	<u>Right Front Passenger</u>
Age/Sex:	23 year old female	29 day old male
Height:	157.5 cm (62.0 in)	53.3 cm (21.0 in)
Weight:	65.8 kg (145.0 lb.)	3.5 kg (7.75 lb.)
Manual Restraint System Usage:	None	In rearward-facing child restraint placed on right front seat and secured with the right front lap belt
Usage Source:	Vehicle inspection	Interview, vehicle inspection, and police report
Eyewear:	None	None
Jewelry:	Watch on left wrist (not damaged)	None
Clothing:	Unknown	unknown

## **HUMAN FACTORS/OCCUPANT DATA (CONT'D.)**

	<u>Driver</u>	<u>Right Front Passenger</u>
Vehicle		
Familiarity:	1.5 years	
Route		
Familiarity:	Fairly familiar	
Trip Plan:	Traveling from photographers to a birthday party	
Type of Medical Treatment:	None	Transported to a nearby hospital and admitted for treatment. Severe brain swelling with skull fractures that resulted in brain death. Mechanically supported for approximately 48 hours prior to his death.

## **DRIVER KINEMATICS AND INJURIES**

<b>DRIVER INJURIES</b>	<b>SEVERITY (AIS-90)</b>	<b>SOURCE</b>
Left anterior neck abrasion	Minor (390202.15)	Driver side air bag
Chin abrasion	Minor (290202.18)	Driver side air bag
Anterior right wrist abrasion	Minor (790202.11)	Driver side air bag
Anterior left wrist abrasion	Minor (790202.12)	Driver side air bag

## **DRIVER KINEMATICS**

The driver of the Mazda Protégé' was in a normal upright position at impact with the Monte Carlo with her seat adjusted to a mid-track position. At the time of inspection, the seat was positioned 12.1 cm (4.75 in) rearward of full forward. She was not wearing the manual 3-point lap and shoulder belt system. Upon impact, the driver initiated a forward trajectory into the path of the deploying driver's side air bag. The deploying air bag abraded the left anterior neck and chin of the driver. A large tissue transfer was noted on the lower left quadrant of the driver's side air bag. In addition she also sustained abrasions of the anterior aspect of both wrists by the deploying air bag. She did not seek out any medical attention but she was seen by the staff at of the pediatric hospital while her son was being treated.

## **CHILD OCCUPANT KINEMATICS AND INJURY**

<b>RIGHT FRONT PASSENGER INJURIES</b>	<b>SEVERITY (AIS-90)</b>	<b>SOURCE</b>
Skull fracture	Moderate (150000.29)	Deploying Passenger side air bag
Brain swelling	Serious (140450.36)	Deploying Passenger side air bag

## **CHILD OCCUPANT KINEMATICS**

Presumably, the 29 day old infant was restrained in the child restraint by the integral 3-point harness, as the infant as still in the seat post-crash. The child restraint was secured in the right front passenger seat with the manual lap belt, facing rearward. The lap belt was routed through the upper loops of the restraint shell; not through the base unit as per the instruction label. The lack of physical evidence on the shoulder webbing and on the back of the restraint shell indicates the shoulder webbing of the vehicle's restraint was not around the seat. Additionally, the required locking clip was still housed inside the restraint base. All indications are the seat was not properly restrained.

The vehicle's seat had been moved prior to the inspection, therefore its exact position at the time of the accident was unknown. However, with the seat adjusted to a mid-track position, the deployed passenger side air bag could extend to the right front seat back, strongly interacting with the child restraint.

During the pre-impact braking phase of the crash, the child restraint moved forward with respect to the vehicle contacting the leading edge of the instrument panel. This placed the upper aspect of the child restraint shell over the top of the passenger side air bag module cover flap. Upon impact and subsequent air bag deployment, the module cover flap rotated upward contacting the upper rear aspect of the shell of the child restraint. This contact and the expanding passenger side air bag would have caused the restraint to rotate violently rearward about the seat back/seat cushion juncture. This rotation, in-turn, would accelerate the infant occupant forward with respect to the child restraint. The contact from the mid-mount passenger air bag module cover flap and the deploying air bag against the shell of the restraint, in combination with the acceleration of the restraint, resulted in the occupant's skull fracture with brain swelling.

**ATTACHMENT A**

**Selected On-Scene Police Photographs**





1. Northbound trajectory view of the accident scene (after the removal of the vehicles).

A-2





2. Northward view of the accident scene with the vehicles at their final rest positions (FRP).





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3. Look back view of the FRP.

A-4





4. Impact damage of the 1995 Mazda Protégé and the 1995 Chevrolet Monte Carlo.





5. Left forward interior view of the Mazda at the FRP.

A-6





6. Right forward interior view of the Mazda at the FRP.

A-7





BEST AVAILABLE

7. View of the FRP of the 1993 Honda Accord and the 1995 Chevrolet Monte Carlo.

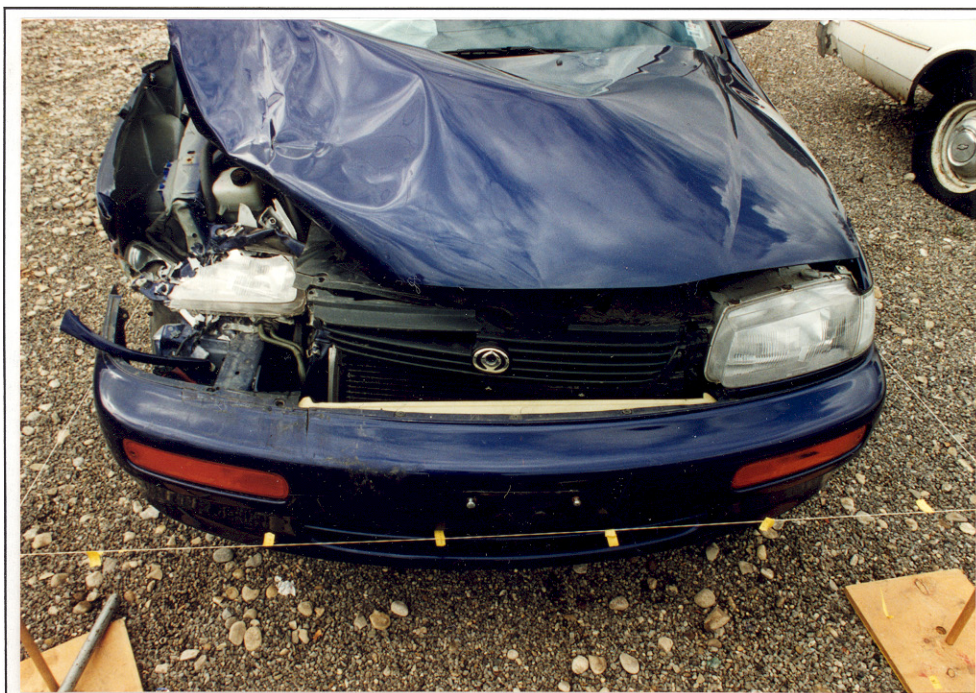


**ATTACHMENT B**

**Selected Vehicle Photographs**



1. Overall front view of the 1995 Mazda Protégé 4 dr sedan (Vehicle 1).

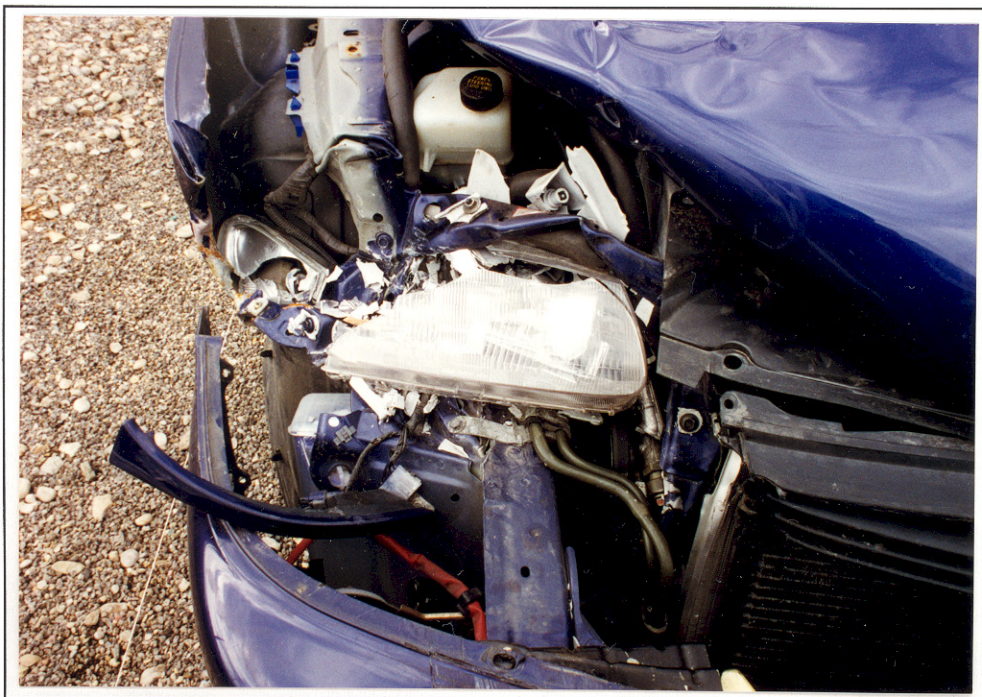


2. View of the frontal damage of Vehicle 1.





3. Close-up view of the right front damage.



4. Close-up view of the right front damage.



5. Left front three-quarter view of Vehicle 1.





6. Left lateral view of the frontal damage.



7. Left view of the engine compartment.



8. Left rear three-quarter view of Vehicle 1.





9. Right rear three-quarter view of Vehicle



10. Right side view of Vehicle 1.





11. Right front three-quarter view of Vehicle 1.



12. Right lateral view of the frontal damage.





13. Close-up view of the right front damage.

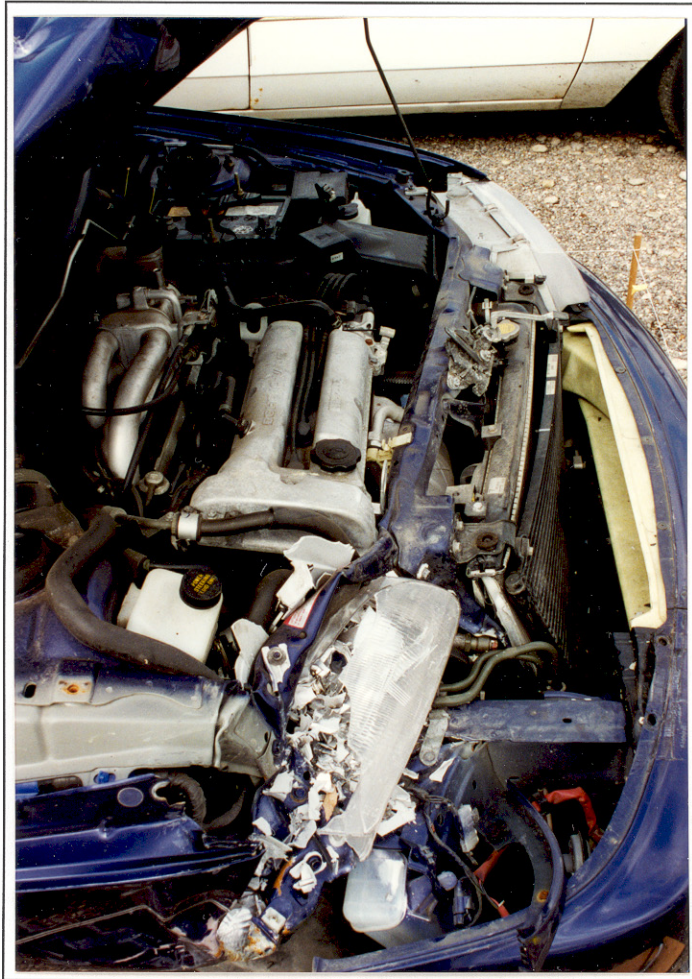


14. Close-up view of the right front damage.



15. Right side view of the engine compartment.





16. Right lateral view of the front of Vehicle 1



17. View of the right side windshield fractures.



18. Angular view of the driver's compartment.





19. Left side view of the front interior compartment.



20. Perpendicular view of the steering wheel.





21. View of the deployed air bag and cover flaps.



22. View of the steering wheel and upper module flap.



23. Angular view of the left front interior and deployed driver side air bag.





24. Forward view of the left front interior.

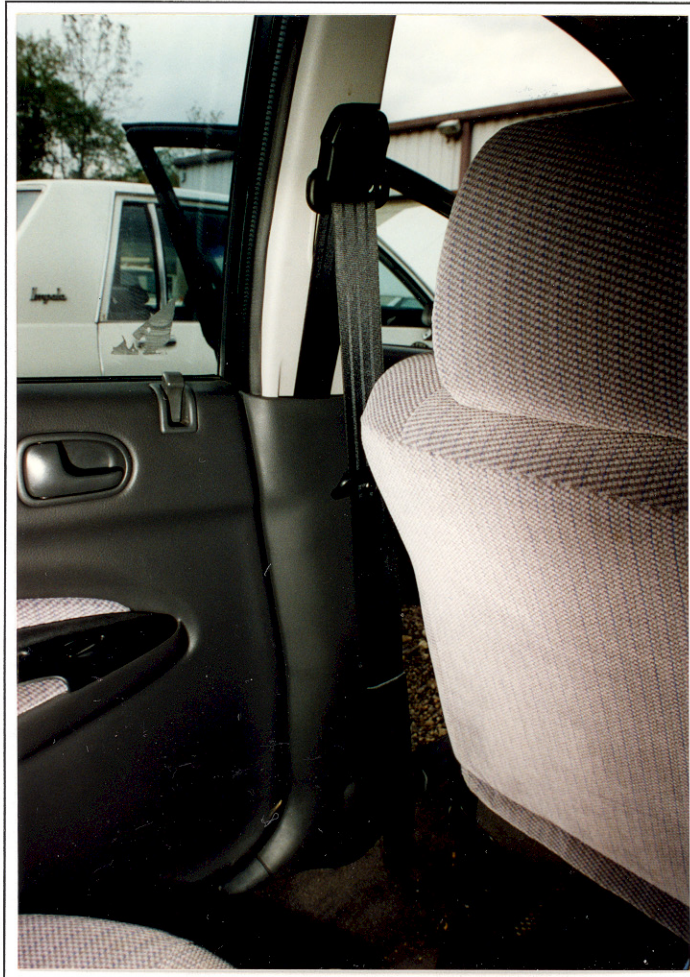


25. View of the face of the driver side air bag.



26. Close-up view of a tissue transfer on the lower left quadrant of the air bag.





27. View of the position of the left front D-ring.





28. View of the energy management loop near the anchor of the left front restraint.



29. View of the left front latch plate depicting infrequent use.

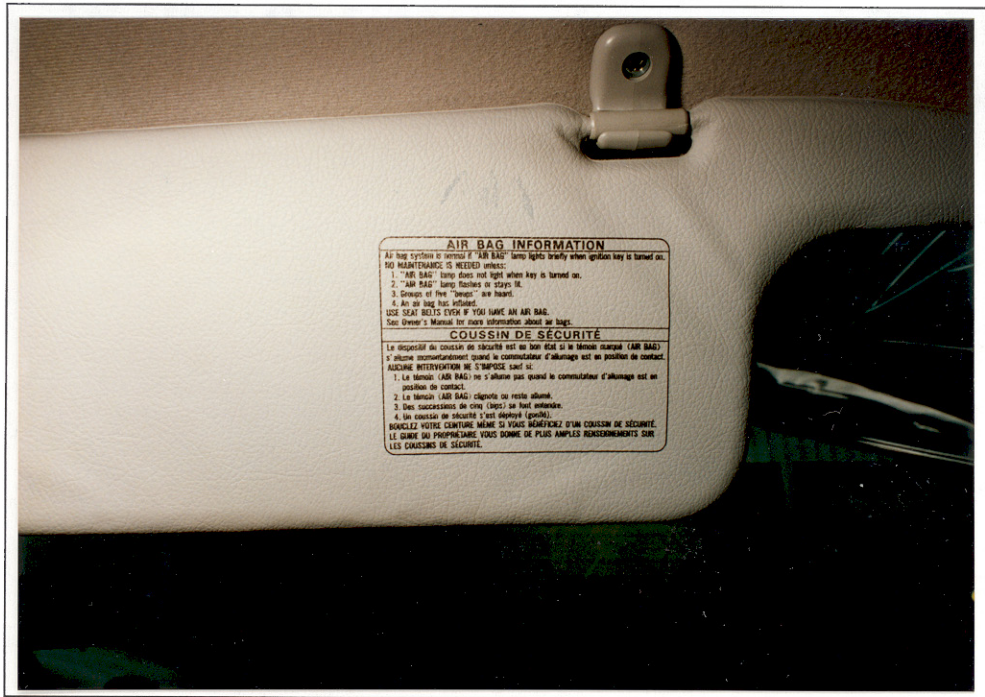


30. View of the left front latch plate (opposite side) depicting infrequent use.



31. View of the left sunvisor in the stowed position.





32. View of the top surface of the left sunvisor and the air bag information label.



33. View of the manufacturer's VIN label.



34. Angular view of the right front interior.



35. Right side view of the front interior.





36. View of the right front interior and deployed passenger air bag.



37. Forward view of the right front interior.



38. Angular view of the deployed passenger air bag and module cover.



39. View of a black transfer on the right side of the deployed passenger air bag.





40. View of transfers on the face of the deployed passenger air bag.



41. View of the blue/green transfers on the lower surface of the deployed passenger air bag.

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42. Angular view of the right front interior and interior contacts, (highlighted).



43. Close-up view of the right front interior and contacts.





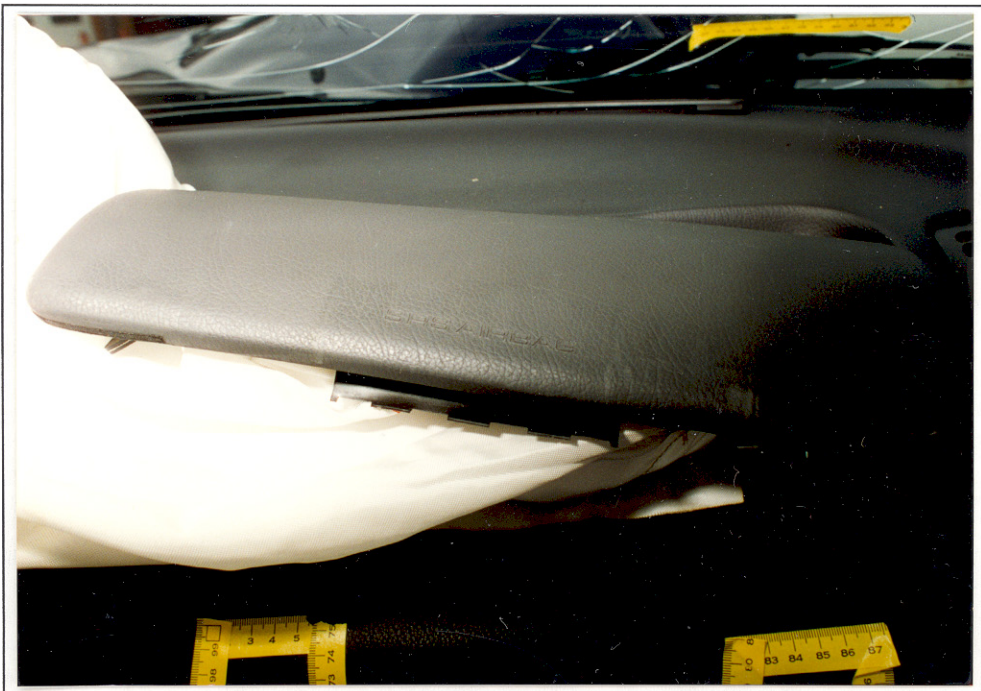
44. View of the passenger side instrument panel (IP).



45. Right side view of the passenger side IP.



46. View of the deformed passenger side air bag module cover.



47. View of white vinyl transfer marks on the leading edge of the module cover.

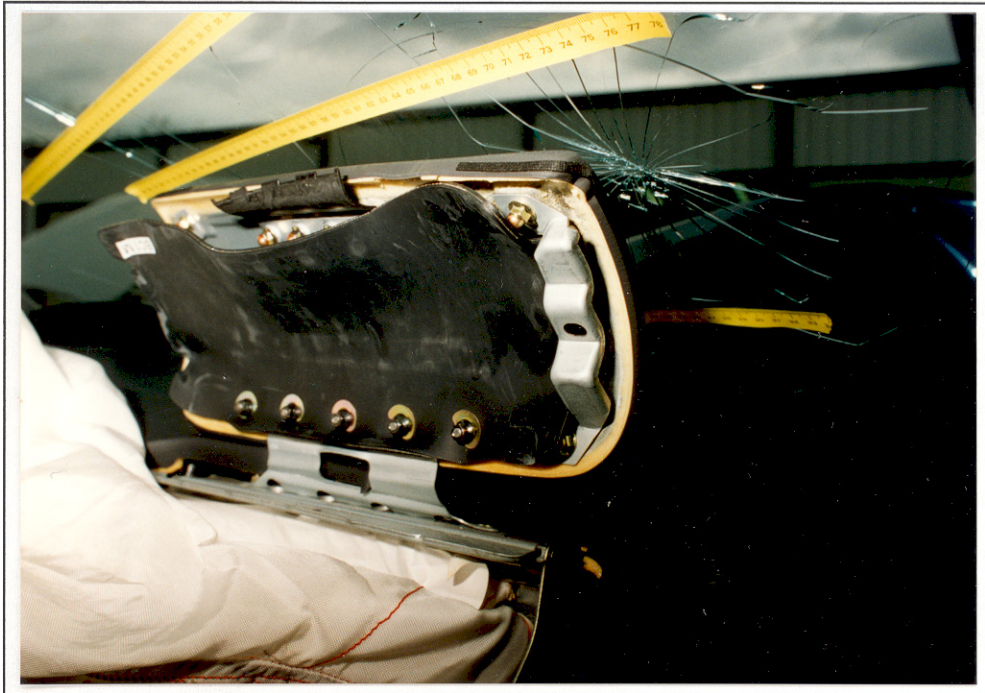




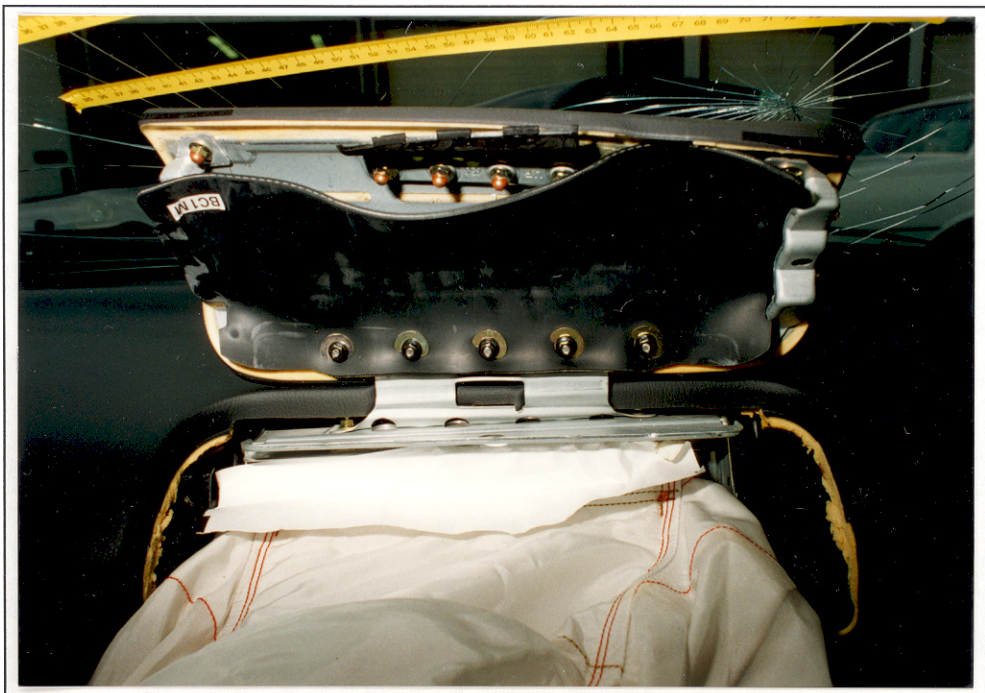
48. Close-up view of a scuff mark on the leading edge of the IP caused by the child restraint.



49. Overall view of the windshield fractures caused by the extended module cover.



50. View of the module cover in the extended position.



51. View of the lower surface of the module cover.





52. View of the fractures in the center of the windshield.



53. View of the right windshield fractures.



54. Overall view of the windshield fractures.



55. Close-up view of the fractures caused by the module cover.





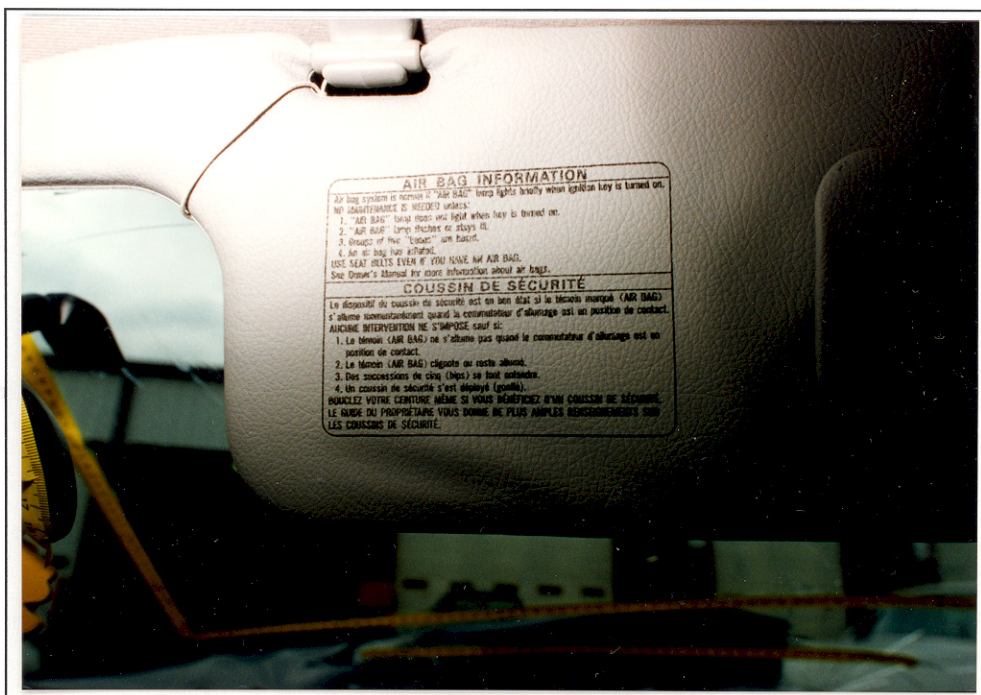
56. Close-up view of the right fracture in photo 55.



57. View of the stowed right sunvisor and contact to the forward right corner.



58. Close-up view of the contact to the right sunvisor.



59. View of the top surface of the sunvisor and the air bag information label.





60. View of a transfer on the forward side of the center mirror.



61. View of the position of right front D-ring.





62. Angular view of the Evenflo Joyride Car Seat Carrier and Travel Tandem base in the right front seat.



63. Right side view of the child restraint and base.





64. Right side view of the child restraint with the air bag in simulated deployment.



65. View of the relationship between the child restraint and the right side instrument panel (IP).





66. View of the relationship between the leading edge of the module cover and the back of the child restraint.



67. View of the relationship between the contacts on the leading edge of the IP and the back of the child restraint.





68. View of the routing of the lap portion of the right front restraint over the child restraint.



69. Close-up view of the lap belt routing.



70. View of the energy management loop on the right front restraint.





71. Overhead view of the Evenflo Joyride Car Seat Carrier and Travel Tandem Base.



72. Front view of the Evenflo Joyride Car Seat Carrier and Travel Tandem Base.





73. Close-up view of the front of the base



74. Left side view of the child restraint.





75. Close-up view of the instruction and warning labels on the left side of the child restraint.



76. Close-up view of the instruction label on the base.



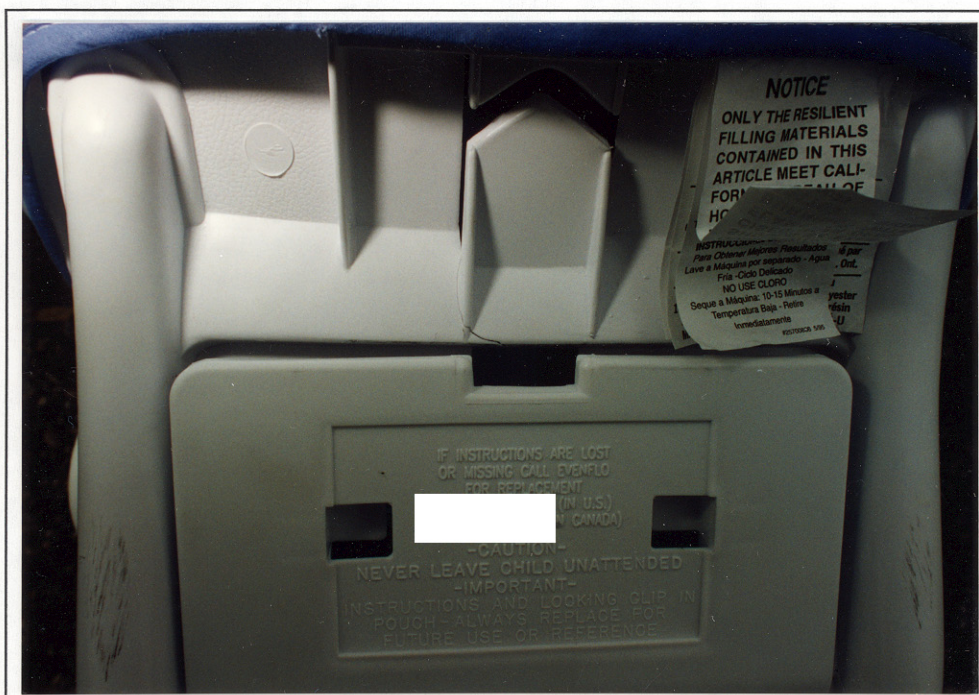


77. View of the back of the child restraint.



78. View of the upper back of the child restraint.





79. Overall view of the fracture and contacts to the back of the child restraint.



80. View of the fracture of the center back of the child restraint.





81. Close-up view of a vinyl transfer to the left side reinforcement of the child restraint.



82. Close-up view of a vinyl transfer to the right side reinforcement of the child restraint.





83. View of the fractured hinge of the rear compartment door.



84. Overall view of the back of child restraint with the rear compartment open depicting the shoulder strap routing

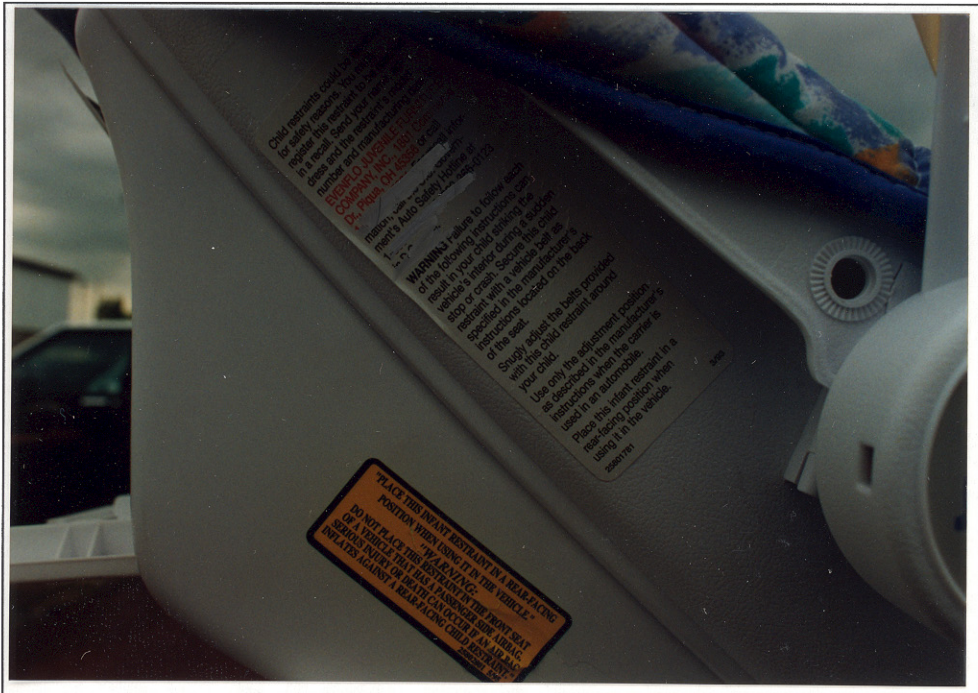


85. View of the locking clip still in the base.

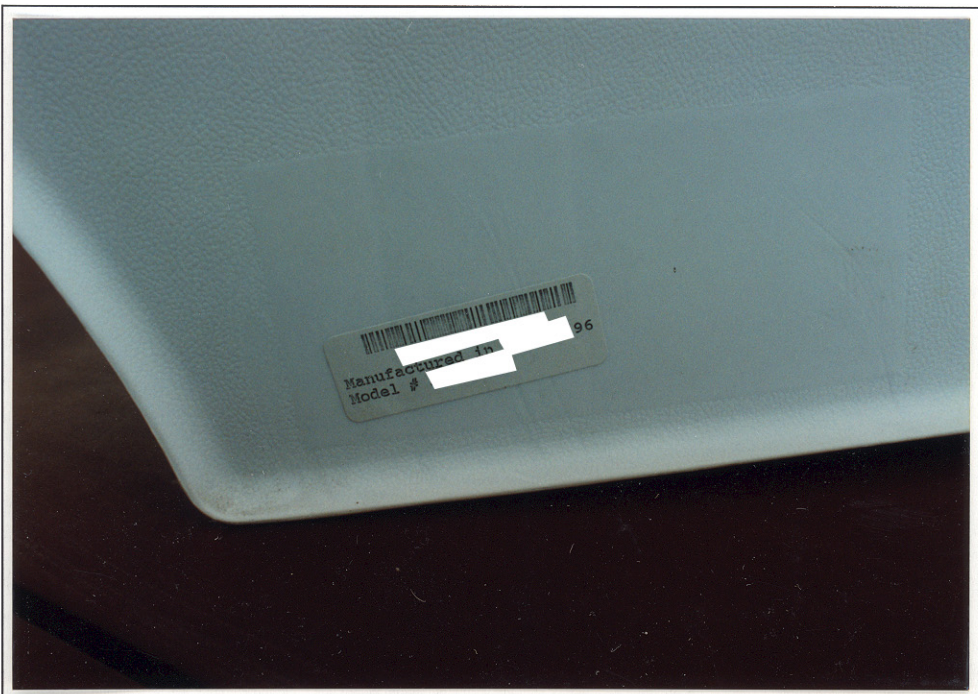


86. Right side view of the child restraint and base.





87. View of the warning labels on the right side of the child restraint.



88. View of the manufacturer's label on the right side of the base.



89. View of the padded back of the child restraint with the fabric removed.





90. Right view of the padded back of the child restraint.



91. View of the manufacturer's molding of the child restraint.





92. Left front three-quarter view of the 1995 Chevrolet Monte Carlo LS 2 dr Coupe, (Vehicle 2).



93. Left side view of Vehicle 2.





94. Left rear three-quarter view of Vehicle 2.



95. Left lateral view across the rear bumper.



96. Lateral view of the rear bumper deformation.





97. Close-up view of the left rear damage.



98. Rear view of Vehicle 2.





99. View of the rear bumper deformation.



100. View of the left half of the rear bumper.





101. Close-up view of the direct contact.



102. Right rear three-quarter view of Vehicle 2.



103. Right lateral view of the rear bumper deformation.





104. Right side view of Vehicle 2.



105. Right front view of forward third of Vehicle 2.

**ATTACHMENT C**

**SMASH Output**



## General Information

96-15, [REDACTED], 1996

	<u>Vehicle 1</u>	<u>Vehicle 2</u>
Year:	1995	1995
Make:	Mazda	Chevrolet
Model:	323 Protege	Monte Carlo
Body Style:	4S	2C
CDC:	12FZMW1	06RYEW2
Damaged Side:	Front	Right
PDOF:	12 degrees	180 degrees
Heading Angle:	360 degrees	360 degrees

## Vehicle Information

	<u>Vehicle 1</u>	<u>Vehicle 2</u>
Wheelbase:	260.4 cm	272.1 cm
Length:	434.2 cm	512.8 cm
Width:	170.6 cm	180.9 cm
Weight:	1159.0 kg	1572.0 kg
Center of Gravity:	106.1 cm	108.2 cm
Radius of Gyration:	146.4 cm	146.4 cm
D0:	92.4 sqrt(N)	63.3 sqrt(N)
D1:	8.6 sqrt(N)/cm	9.2 sqrt(N)/cm
Size Category:	3	3
Stiffness Category:	0	0

Vehicle 1: Used d0 and d1 values from this specific vehicle.

Vehicle 2: Used d0 and d1 values from this specific vehicle.

96-15, [REDACTED], 1996

WinSMASH Beta Version 2

## Damage Information

	<u>Vehicle 1</u>	<u>Vehicle 2</u>
Damage Length:	146.0 cm	126.0 cm
Damage Offset:	0.0 cm	0.0 cm
C1:	2.3 cm	32.9 cm
C2:	5.4 cm	28.1 cm
C3:	6.0 cm	19.1 cm
C4:	10.8 cm	11.2 cm
C5:	19.3 cm	4.3 cm
C6:	15.6 cm	0.0 cm



## Summary of Results Using Damage

### Vehicle 1

	Speed Change (Damage)
Total:	25.8 km/h
Longitudinal:	-25.2 km/h
Latitudinal:	-5.4 km/h

Energy Dissipated: 25,028 Joules

Barrier Equivalent Speed: 23.6 km/h

Used d0 and d1 values from this specific vehicle.

### Vehicle 2

	Speed Change (Damage)
Total:	19.0 km/h
Longitudinal:	19.0 km/h
Latitudinal:	0.0 km/h

Energy Dissipated: 33,125 Joules

Barrier Equivalent Speed: 20.5 km/h

Used d0 and d1 values from this specific vehicle.

**ATTACHMENT D**

**NASS General Vehicle Form**





## GENERAL VEHICLE FORM

1. Primary Sampling Unit Number

2. Case Number - Stratum

3. Vehicle Number

9615  
01

### VEHICLE IDENTIFICATION

4. Vehicle Model Year

Code the last two digits of the model year  
(99) Unknown

95

5. Vehicle Make (specify):

MAZDA  
Applicable codes are found in your  
NASS Data Collection, Coding and  
Editing Manual.  
(99) Unknown

41

6. Vehicle Model (specify):

PROGE  
Applicable codes are found in your  
NASS Data Collection, Coding and  
Editing Manual.  
(999) Unknown

035

7. Body Type

Note: Applicable codes may be found on  
the back of this page.

04

8. Vehicle Identification Number

JM1BA14150 [REDACTED]  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17  
Left justify; Slash zeros and letter Z (Ø and Z)  
No VIN—Code all zeros  
Unknown—Code all nines

9. Vehicle Special Use (This Trip)

- (0) No special use  
(1) Taxi  
(2) Vehicle used as school bus  
(3) Vehicle used as other bus  
(4) Military  
(5) Police  
(6) Ambulance  
(7) Fire truck or car  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

0

### OFFICIAL RECORDS

10. Police Reported Vehicle Disposition

- (0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

1

11. Police Reported Travel Speed

Code to the nearest kmph (NOTE: 000 means  
less than 0.5 kmph)  
(160) 159.5 kmph and above  
(999) Unknown

999

\_\_\_\_\_ mph X 1.6093 = \_\_\_\_\_ kmph

12. Speed Limit

(000) No statutory limit  
Code posted or statutory speed limit in kmph  
(999) Unknown

089

\_\_\_\_\_ mph X 1.6093 = \_\_\_\_\_ kmph

13. Police Reported Alcohol Presence For Driver

- (0) No alcohol present  
(1) Yes alcohol present  
(7) Not reported  
(8) No driver present  
(9) Unknown

0

14. Alcohol Test Result For Driver

Code actual value (decimal implied  
before first digit—0.xx)  
(95) Test refused  
(96) None given  
(97) AC test performed, results unknown  
(98) No driver present  
(99) Unknown

96

Source: \_\_\_\_\_

15. Police Reported Other Drug Presence For Driver

- (0) No other drug(s) present  
(1) Yes other drug(s) present  
(7) Not reported  
(8) No driver present  
(9) Unknown

0

16. Other Drug Specimen Test Result For Driver

- (0) No specimen test given  
(1) Drug(s) not found in specimen  
(2) Drug(s) found in specimen, (specify): \_\_\_\_\_  
(3) Specimen test given, results unknown or not  
obtained  
(8) No driver present  
(9) Unknown if specimen test given

0

17. Driver's Zip Code

[REDACTED]  
(00001) Driver not a resident of U.S. or territories  
Code actual 5-digit zip code  
(99998) No driver present  
(99999) Unknown

18. Driver's Race/Ethnic Origin

- (1) White (non-Hispanic)  
(2) Black (non-Hispanic)  
(3) White (Hispanic)  
(4) Black (Hispanic)  
(5) American Indian, Eskimo or Aleut  
(6) Asian or Pacific Islander  
(7) Other (specify): \_\_\_\_\_  
(8) No driver present  
(9) Unknown

2

**PRECRASH ENVIRONMENTAL DATA**

19. Relation To Interchange Or Junction 1
- (0) Non-interchange area and non-junction
  - (1) Interchange area related

*Non-Interchange junctions*

- (2) Intersection related
- (3) Driveway, alley access related
- (4) Other junction (specify) \_\_\_\_\_
- (5) Unknown type of junction
- (9) Unknown

20. Trafficway Flow 3
- (0) Not physically divided (two way traffic)
  - (1) Divided trafficway-median strip without positive barrier
  - (2) Divided trafficway-median strip with positive barrier
  - (3) One way traffic
  - (9) Unknown

21. Number Of Travel Lanes 1
- (1) One
  - (2) Two
  - (3) Three
  - (4) Four
  - (5) Five
  - (6) Six
  - (7) Seven or more
  - (9) Unknown

22. Roadway Alignment 2
- (1) Straight
  - (2) Curve right
  - (3) Curve left
  - (9) Unknown

23. Roadway Profile 1
- (1) Level
  - (2) Uphill grade (> 2%)
  - (3) Hill crest
  - (4) Downhill grade (> 2%)
  - (5) Sag
  - (9) Unknown

24. Roadway Surface Type 1
- (1) Concrete
  - (2) Bituminous (asphalt)
  - (3) Brick or block
  - (4) Slag, gravel, or stone
  - (5) Dirt
  - (8) Other (specify): \_\_\_\_\_
  - (9) Unknown

25. Roadway Surface Condition 1

- (1) Dry
- (2) Wet
- (3) Snow or slush
- (4) Ice
- (5) Sand, dirt, or oil
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

26. Light Conditions 1

- (1) Daylight
- (2) Dark
- (3) Dark, but lighted
- (4) Dawn
- (5) Dusk
- (9) Unknown

27. Atmospheric Conditions 0

- (0) No adverse atmospheric-related driving conditions
- (1) Rain
- (2) Sleet/hail
- (3) Snow
- (4) Fog
- (5) Rain and fog
- (6) Sleet and fog
- (7) Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify): \_\_\_\_\_
- (9) Unknown

28. Traffic Control Device 3

- (0) No traffic control(s)
- (1) Traffic control signal (not RR crossing)

*Regulatory*

- (2) Stop sign
- (3) Yield sign
- (4) School zone sign
- (5) Other regulatory sign (specify): \_\_\_\_\_

- (6) Warning sign (not RR crossing)

- (7) Unknown sign

- (8) Miscellaneous/other controls including RR controls (specify): \_\_\_\_\_

- (9) Unknown

29. Traffic Control Device Functioning 0

- (0) No traffic control device
- (1) Traffic control device not functioning (specify): \_\_\_\_\_

- (2) Traffic control device functioning properly
- (9) Unknown



**PRECRASH DRIVER RELATED DATA**

30. Driver's Distraction/Inattention To Driving (Prior To Recognition Of Critical Event) 1 2
- (00) No driver present
- (01) Attentive or not distracted
- (02) Looked but did not see
- Distractions*
- (03) By other occupant(s), (specify): \_\_\_\_\_
- (04) By moving object in vehicle (specify): \_\_\_\_\_
- (05) While talking or listening to cellular phone (specify location and type of phone): \_\_\_\_\_
- (06) While dialing cellular phone (specify location and type of phone): \_\_\_\_\_
- (07) While adjusting climate controls
- (08) While adjusting radio, cassette, CD (specify): \_\_\_\_\_
- (09) While using other device/controls integral to vehicle (specify): \_\_\_\_\_
- (10) While using or reaching for device/object brought into vehicle (specify): \_\_\_\_\_
- (11) Sleepy or fell asleep
- (12) Distracted by outside person, object, or event (specify): checking traffic to left
- (13) Eating or drinking
- (14) Smoking related
- (97) Distracted/inattentive, details unknown
- (98) Other, distraction (specify): \_\_\_\_\_
- (99) Unknown
31. Pre-Event Movement (Prior to Recognition of Critical Event) 0 3
- (00) No driver present
- (01) Going straight
- (02) Decelerating in traffic lane
- (03) Accelerating in traffic lane
- (04) Starting in traffic lane
- (05) Stopped in traffic lane
- (06) Passing or overtaking another vehicle
- (07) Disabled or parked in travel lane
- (08) Leaving a parking position
- (09) Entering a parking position
- (10) Turning right
- (11) Turning left
- (12) Making a U-turn
- (13) Backing up (other than for parking position)
- (14) Negotiating a curve
- (15) Changing lanes
- (16) Merging
- (17) Successful avoidance maneuver to a previous critical event
- (97) Other (specify): \_\_\_\_\_
- (99) Unknown
32. Critical Precrash Event 5 0
- THIS VEHICLE LOSS OF CONTROL DUE TO:**
- (01) Blow out or flat tire
- (02) Stalled engine
- (03) Disabling vehicle failure (e.g., wheel fell off) (specify): \_\_\_\_\_
- (04) Non-disabling vehicle problem (e.g., hood flew up) (specify): \_\_\_\_\_
- (05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): \_\_\_\_\_
- (06) Traveling too fast for conditions
- (08) Other cause of control loss (specify): \_\_\_\_\_
- (09) Unknown cause of control loss

**THIS VEHICLE TRAVELLING**

- (10) Over the lane line on left side of travel lane
- (11) Over the lane line on right side of travel lane
- (12) Off the edge of the road on the left side
- (13) Off the edge of the road on the right side
- (14) End departure
- (15) Turning left at intersection
- (16) Turning right at intersection
- (17) Crossing over (passing through) intersection
- (18) This vehicle decelerating
- (19) Unknown travel direction

**OTHER MOTOR VEHICLE IN LANE**

- (50) Other vehicle stopped
- (51) Traveling in same direction with lower steady speed
- (52) Traveling in same direction while decelerating
- (53) Traveling in same direction with higher speed
- (54) Traveling in opposite direction
- (55) In crossover
- (56) Backing
- (59) Unknown travel direction of other motor vehicle in lane

**OTHER MOTOR VEHICLE ENCROACHING INTO LANE**

- (60) From adjacent lane (same direction)—over left lane line
- (61) From adjacent lane (same direction)—over right lane line
- (62) From opposite direction—over left lane line
- (63) From opposite direction—over right lane line
- (64) From parking lane
- (65) From crossing street, turning into same direction
- (66) From crossing street, across path
- (67) From crossing street, turning into opposite direction
- (68) From crossing street, intended path not known
- (70) From driveway, turning into same direction
- (71) From driveway, across path
- (72) From driveway, turning into opposite direction
- (73) From driveway, intended path not known
- (74) From entrance to limited access highway
- (78) Encroachment by other vehicle—details unknown

**PEDESTRIAN, PEDALCYCLIST, OR OTHER NONMOTORIST**

- (80) Pedestrian in roadway
- (81) Pedestrian approaching roadway
- (82) Pedestrian—unknown location
- (83) Pedalcyclist or other nonmotorist in roadway (specify): \_\_\_\_\_
- (84) Pedalcyclist or other nonmotorist approaching roadway, (specify): \_\_\_\_\_
- (85) Pedalcyclist or other nonmotorist—unknown location (specify): \_\_\_\_\_

**OBJECT OR ANIMAL**

- (87) Animal in roadway
- (88) Animal approaching roadway
- (89) Animal—unknown location
- (90) Object in roadway
- (91) Object approaching roadway
- (92) Object—unknown location
- (98) Other critical precrash event (specify): \_\_\_\_\_
- (99) Unknown

<p>33. Attempted Avoidance Maneuver <u>02</u></p> <p>(00) No driver present (01) No avoidance maneuver (02) Braking (no lockup) (03) Braking (lockup) (04) Braking (lockup unknown) (05) Releasing brakes (06) Steering left (07) Steering right (08) Braking and steering left (09) Braking and steering right (10) Accelerating (11) Accelerating and steering left (12) Accelerating and steering right (98) Other action (specify): _____ (99) Unknown</p> <p>34. Pre-Impact Stability <u>1</u></p> <p>(0) No driver present (1) Tracking (2) Skidding longitudinally—rotation less than 30 degrees (3) Skidding laterally—clockwise rotation (4) Skidding laterally—counterclockwise rotation (7) Other vehicle loss-of-control (specify): _____ (9) Precrash stability unknown</p>	<p>35. Pre-Impact Location <u>1</u></p> <p>(0) No driver present (1) Stayed in original travel lane (2) Stayed on roadway but left original travel lane (3) Stayed on roadway, not known if left original travel lane (4) Departed roadway (5) Remained off roadway (6) Returned to roadway (7) Entered roadway (9) Unknown</p> <p>36. Accident Type <u>20</u> (Note: Applicable codes on back of this page)</p> <p>(00) No impact Code the number of the diagram that best describes the accident circumstance (98) Other accident type (specify): _____ (99) Unknown</p>
--	--

**STOP HERE IF GV07 DOES NOT EQUAL 01 - 49**



**OCCUPANT RELATED**

37. Driver Presence in Vehicle 1  
 (0) Driver not present  
 (1) Driver present  
 (9) Unknown
38. Number of Occupants This Vehicle 02  
 (00-96) Code actual number of occupants for this vehicle  
 (97) 97 or more  
 (99) Unknown
39. Number of Occupant Forms Submitted 02

**AIR BAG RELATED**

40. Is this an AOB vehicle? 1  
 (0) No (incl. unknown)  
 (1) Yes - reason determined  
 (2) VIN determined air bag system  
 (3) VIN determined automatic (passive) belts  
 (4) VIN determined air bag and automatic (passive) belts
41. Air Bag(s) Deployment, First Seat Frontal 6  
 (0) Not equipped or not available  
 (1) No air bags deployed  
*Single Air Bag Vehicle*  
 (2) Driver air bag deployed  
 (3) Driver air bag, unknown if deployed  
*Multiple Air Bag Vehicle*  
 (4) Driver side only deployed  
 (5) Passenger side only deployed  
 (6) Driver and passenger side deployed  
 (7) Driver and passenger side unknown if deployed  
 (8) Air bag(s) deployed, details unknown  
 (9) Unknown
42. Air Bag(s) Deployment, Other Than First Seat Frontal 0  
 (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

Specify type of "other" air bag present: \_\_\_\_\_

**VEHICLE WEIGHT ITEMS**

43. Vehicle Curb Weight 1,080  
 Code weight to nearest 10 kilograms.  
 (045) Less than 454 kilograms  
 (612) 6,124 kilograms or more  
 (999) Unknown  
2,385 lbs X .4536 = 1,082 kgs

Source: \_\_\_\_\_

44. Vehicle Cargo Weight 0,000  
 Code weight to nearest 10 kilograms.  
 (000) Less than 5 kilograms  
 (454) 4,536 kilograms or more  
 (999) Unknown  
 \_\_\_\_\_ lbs X .4536 = \_\_\_\_\_ kgs

Source: \_\_\_\_\_

**ROLLOVER DATA**

45. Rollover 00  
 (00) No rollover (no overturning)  
*Rollover (primarily about the longitudinal axis)*  
 (01-16) Code the number of quarter turns Rollover, 17 or more quarter turns (specify): \_\_\_\_\_  
 (98) Rollover--end-over-end (i.e., primarily about the lateral axis)  
 (99) Rollover (overturn), details unknown
46. Rollover Initiation Type 00  
 (00) No rollover  
 (01) Trip-over  
 (02) Flip-over  
 (03) Turn-over  
 (04) Climb-over  
 (05) Fall-over  
 (06) Bounce-over  
 (07) Collision with another vehicle  
 (08) Other rollover initiation type specify): \_\_\_\_\_  
 (98) Rollover--end-over-end  
 (99) Unknown rollover initiation type
47. Location of Rollover Initiation 0  
 (0) No rollover  
 (1) On roadway  
 (2) On shoulder--paved  
 (3) On shoulder--unpaved  
 (4) On roadside or divided trafficway median  
 (8) Rollover--end-over-end  
 (9) Unknown
48. Rollover Initiation Object Contacted 00  
 (Note: Applicable codes on back of page)
49. Location on Vehicle Where Initial Principal Tripping Force Is Applied 0  
 (0) No rollover  
 (1) Wheels/tires  
 (2) Side plane  
 (3) End plane  
 (4) Undercarriage  
 (5) Other location on vehicle (specify): \_\_\_\_\_  
 (6) Non-contact rollover forces (specify): \_\_\_\_\_  
 (8) Rollover--end-over-end  
 (9) Unknown
50. Direction of Initial Roll 0  
 (0) No rollover  
 (1) Roll right - primarily about the longitudinal axis  
 (2) Roll left - primarily about the longitudinal axis  
 (8) Rollover--end-over-end  
 (9) Unknown roll direction

**OVERRIDE/UNDERRIDE (THIS VEHICLE)**

51. Front Override/Underride (this Vehicle) 1
52. Rear Override/Underride (this Vehicle) 0
- (0) No override/underride, or not an end-to-end impact between two CDS applicable vehicles, and no medium/heavy truck or bus underride
- Override (see specific CDC)*  
*[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]*  
 (1) 1st CDC  
 (2) 2nd CDC  
 (3) Other not automated CDC (specify):  
 \_\_\_\_\_
- Underride (see specific CDC)*  
*[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]*  
 (4) 1st CDC  
 (5) 2nd CDC  
 (6) Other not automated CDC (specify):  
 \_\_\_\_\_
- (7) Medium/heavy truck or bus override (of any configuration)  
 (9) Unknown

**HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V**

Values: (000)-(359) Code actual value  
 (996) Non-horizontal impact  
 (997) Noncollision  
 (998) Impact with object  
 (999) Unknown

53. Heading Angle For This Vehicle 0 0 0
54. Heading Angle For Other Vehicle 0 0 0

**RECONSTRUCTION DATA**

55. Towed Trailing Unit 0
- (0) No towed unit  
 (1) Yes—towed trailing unit  
 (9) Unknown
56. Documentation of Trajectory Data for This Vehicle 0
- (0) No  
 (1) Yes
57. Post Collision Condition of Tree or Pole (For Highest Delta V) 0
- (0) Not collision (for highest delta V) with tree or pole  
 (1) Not damaged  
 (2) Cracked/sheared  
 (3) Tilted <45 degrees  
 (4) Tilted ≥45 degrees  
 (5) Uprooted tree  
 (6) Separated pole from base  
 (7) Pole replaced  
 (8) Other (specify):  
 \_\_\_\_\_
- (9) Unknown

**ACCIDENT RECONSTRUCTION PROGRAMS HIGHEST DELTA V**

58. Basis for Total (Resultant) Delta V (highest) 0 1

(00) No vehicle inspection

*Delta V Calculated*

- (01) Reconstruction program-damage only routine  
 (02) Reconstruction program-damage and trajectory routine  
 (03) Missing vehicle algorithm

*Delta V Not Calculated*

- (04) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.

*All vehicles within scope (CDC applicable) of reconstruction program but one of the collision conditions is beyond the scope of the reconstruction program or other acceptable reconstruction technique, regardless of adequacy of damage data.*

- (05) Rollover  
 (06) Other non-horizontal forces  
 (07) Sideswipe type damage  
 (08) Severe override  
 (09) Yielding object  
 (10) Overlapping damage  
 (11) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available, (specify):  
 \_\_\_\_\_  
 \_\_\_\_\_

- (98) Other, (specify): \_\_\_\_\_  
 \_\_\_\_\_



## COMPUTER GENERATED CRASH SEVERITY

59. Total Delta V Highest

26 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
(160) 159.5 kmph and above  
(999) Unknown

60. Longitudinal Component of Delta V Highest

-25 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: \_\_000 means greater than  
-0.5 kmph and less than +0.5 kmph)  
(±160) ±159.5 kmph and above  
(\_\_999) Unknown

61. Lateral Component of Delta V Highest

-5 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: \_\_000 means greater than -0.5 kmph and  
less than +0.5 kmph)  
(±160) ±159.5 kmph and above  
(\_\_999) Unknown

62. Energy Absorption Highest

25,000 Nearest 100 joules (highest)         Nearest 100 joules (secondary)

(NOTE: 0000 means less than 50 joules)  
(9997) 999,650 joules or more  
(9999) Unknown

63. Impact Speed Highest

         Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: 000 means  
less than 0.5 kmph)  
(160) 159.5 kmph and above  
(998) Trajectory algorithm not run  
(999) Unknown

## DELTA V CONFIDENCE LEVEL

64. Confidence In Reconstruction Program Results (For Highest Delta V)

- (0) No reconstruction  
(1) Collision fits model — results appear reasonable  
(2) Collision fits model — results appear high  
(3) Collision fits model — results appear low  
(4) Borderline reconstruction — results appear reasonable

## OTHER SPEED ESTIMATE

65. Barrier Equivalent Speed Highest

24 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: 000 means  
less than 0.5 kmph)  
(160) 159.5 kmph and above  
(999) Unknown

ESTIMATED DELTA V	INSPECTION TYPE
66. Estimated Highest Delta V (Researcher Determined) <u>0</u> (0) Reconstruction Delta V coded  <i>Estimated Delta V</i> (1) Less than 10 kmph (2) $\geq 10$ kmph but $< 25$ kmph (3) $\geq 25$ kmph but $< 40$ kmph (4) $\geq 40$ kmph but $< 55$ kmph (5) $\geq 55$ kmph  <i>Other estimates of damage severity</i> (6) Minor (7) Moderate (8) Severe  (9) Unknown	67. Type of Vehicle Inspection <u>3</u> (0) No inspection (1) Vehicle fully repaired-no damage evident (2) Partial inspection (specify): _____ (3) Complete inspection  <b>DELTA V EVENT NUMBER</b>  68. Delta V Event Number <u>1</u> _____ Code the accident event sequence number that resulted in the Delta V that has been coded above for this vehicle (99) Unknown

\*\*\* IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV67 = 0), \*\*\*

DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

\*\*\* IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE \*\*\*

THE EXTERIOR VEHICLE, INTERIOR VEHICLE,  
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.



**ATTACHMENT E**

**NASS Exterior Vehicle Forms**



# EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	3. Vehicle Number
2. Case Number - Stratum	

## VEHICLE IDENTIFICATION

VIN J M I B A 1 4 1 6 S 0 Model Year 95

Vehicle Make (specify): MAZDA Vehicle Model (specify): PROTEGE

## LOCATOR

Locate the end of the damage with respect to the vehicle's damaged center point or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L	Location of Max Crush
01	Front Plane - 16 cm (R)	Whole front width	C5
	at pt. to Rear frame		
	Corner		

## CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

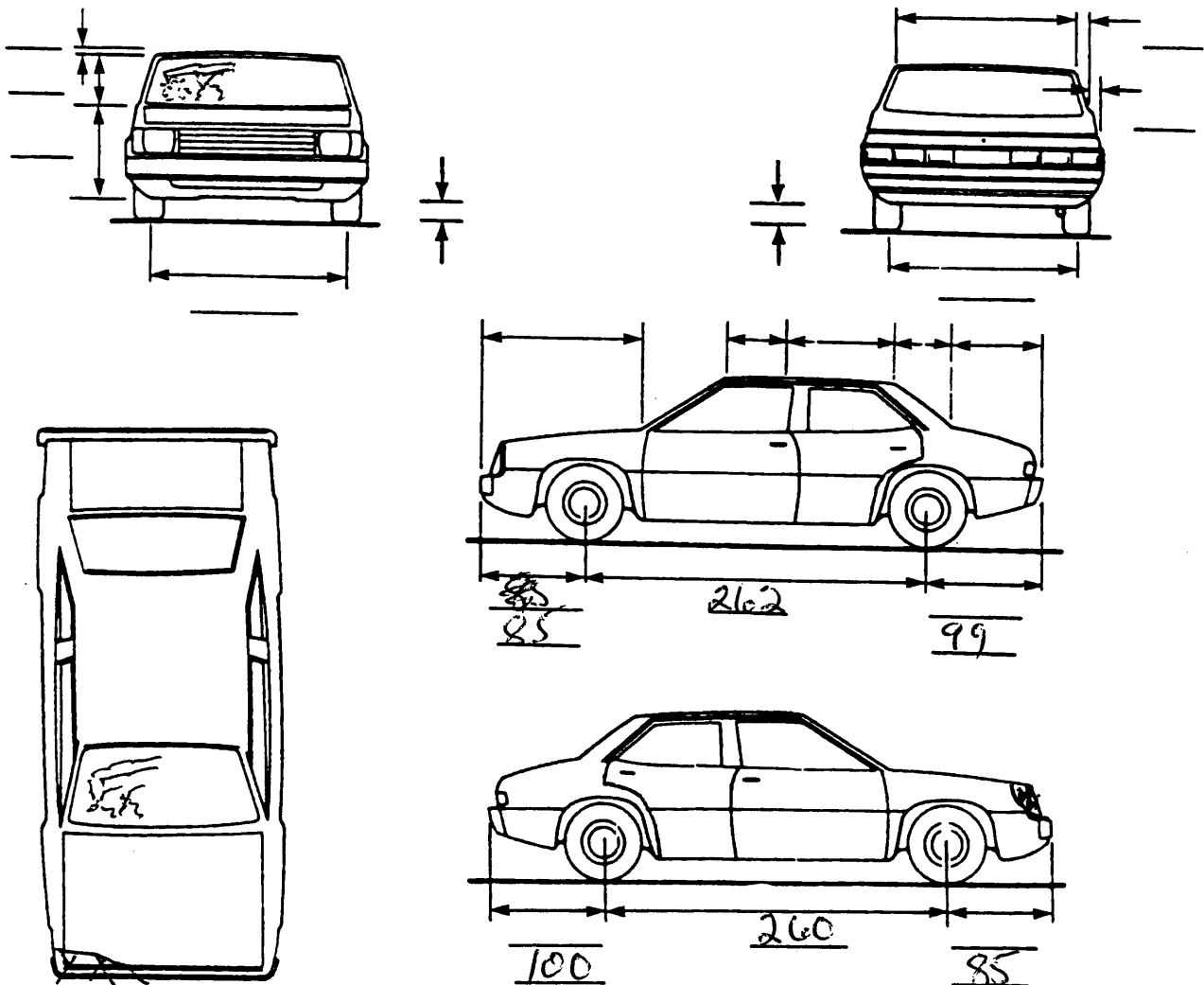
Specific Impact Number	Plane of Impact C-Measurements	Direct Damage		Field L	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	±D
		Width (CDC)	Max Crush								
01	Bumper	56.1	1.4	146	17.0	5	0.5	1	6.9	18.4	0
	Free space				17.0	5.5	0.5	0.5	5.5	17.0	
	Crush				0	0	0	0.5	1.4	1.4	
01	Radiator	56.1	19.3	146	48.3	39.4	40.0	44.8	53.3	61.6	
	Upper Support										
	Free space				46.0	34.0	34.0	34.0	34.0	46.0	
	Crush				2.5	5.4	6.0	10.8	19.3	15.6	



## VEHICLE DAMAGE SKETCH

<b>TIRE—WHEEL DAMAGE</b> a. Rotation physically restricted RF <u>2</u> LF <u>1</u> RR <u>1</u> LR <u>1</u> b. Tire deflated RF <u>2</u> LF <u>1</u> RR <u>1</u> LR <u>1</u> (1) Yes (2) No (8) NA (9) Unk.		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>261</u> cm Overall Length <u>444</u> cm Maximum Width <u>171</u> cm Curb Weight <u>1082</u> kg Average Track <u>146</u> cm Front Overhang <u>85</u> cm Rear Overhang <u>99</u> cm Undeformed End Width <u>146</u> cm Engine Size: cyl./displ. <u>24 1.5 1500</u> L		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF $\pm$ _____° LF $\pm$ _____° RR $\pm$ _____° LR $\pm$ _____° Within $\pm$ 5 degrees
<b>TYPE OF TRANSMISSION</b> <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic END SHIFT $\geq$ 10 CM <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>DRIVE WHEELS</b> <input checked="" type="checkbox"/> FWD <input type="checkbox"/> RWD <input type="checkbox"/> 4WD Approximate Cargo Weight <u>0</u> kg		

## MEASUREMENTS IN CENTIMETERS



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

**CODES FOR OBJECT CONTACTED**

(99) Unknown event or object

[illegible]



**COLLISION DEFORMATION CLASSIFICATION****HIGHEST DELTA "V"**

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>01</u>	5. <u>02</u>	6. <u>12</u>	7. <u>F</u>	8. <u>Z</u>	9. <u>M</u>	10. <u>W</u>	11. <u>01</u>

**Second Highest Delta "V"**

12. \_\_\_\_\_ 13. \_\_\_\_\_ 14. \_\_\_\_\_ 15. \_\_\_\_\_ 16. \_\_\_\_\_ 17. \_\_\_\_\_ 18. \_\_\_\_\_ 19. \_\_\_\_\_

**CRUSH PROFILE IN CENTIMETERS**

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

**HIGHEST DELTA "V"**

20. L	21. C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	22. ± D
<u>146</u>	<u>2.3</u>	<u>5.4</u>	<u>6.0</u>	<u>10.8</u>	<u>19.3</u>	<u>15.6</u>	<u>+ 0</u>

**Second Highest Delta "V"**

23. L	24. C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	25. ± D
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

26. Undeformed End Width  
(Coded when highest severity impact is an end plane impact.) 146  
 \_\_\_\_\_ Code to the nearest centimeter  
 (250) 250 centimeters or more  
 (998) No highest severity end plane impact  
 (999) Unknown

27. Direct Damage Width  
(For highest severity impact) 72  
 \_\_\_\_\_ Code to the nearest centimeter  
 (250) 250 centimeters or more  
 (999) Unknown

28. Original Wheelbase 261  
 \_\_\_\_\_ Code to the nearest centimeter  
 (650) 650 centimeters or more  
 (999) Unknown  
 \_\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters

29. Original Average Track Width 146  
 \_\_\_\_\_ Code to the nearest centimeter  
 (185) 185 centimeters or more  
 (999) Unknown  
 \_\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters

**FUEL SYSTEM**

30. Are CDCs Documented but Not Coded on The Automated File? 0  
 (0) No  
 (1) Yes
31. Researcher's Assessment of Vehicle Disposition 1  
 (0) Not towed due to vehicle damage  
 (1) Towed due to vehicle damage  
 (9) Unknown
32. Is This A Multi-Stage Manufactured Vehicle And/Or A Certified Altered Vehicle? 0  
 (0) No post manufacturer modifications  
 (1) Yes - post manufacturer modifications (specify): \_\_\_\_\_  
 \_\_\_\_\_  
 (Include photograph of CERTIFICATION PLACARD in case report)  
 (9) Unknown if vehicle is modified

**FIRE OCCURRENCE**

33. Fire Occurrence 0  
 (0) No fire  
 Yes, fire occurred  
 (1) Minor  
 (2) Major  
 (9) Unknown
34. Origin of Fire 0  
 (0) No fire  
 (1) Vehicle exterior (front, side, back, top)  
 (2) Exhaust system  
 (3) Fuel tank (and other fuel retention system parts)  
 (4) Engine compartment  
 (5) Cargo/trunk compartment  
 (6) Instrument panel  
 (7) Passenger compartment area  
 (8) Other location (specify): \_\_\_\_\_  
 (9) Unknown

35. Location of Fuel Tank-1 Filler Cap 2
36. Location of Fuel Tank-2 Filler Cap C  
 (0) No fuel tank  
 (1) On back plane  
 (2) Aft of center of the rear wheels (rear axle) on left side plane  
 (3) Aft of center of the rear wheels (rear axle) on right side plane  
 (4) Forward of center of the rear wheels (rear axle) on left side plane  
 (5) Forward of center of the rear wheels (rear axle) on right side plane  
 (6) Over the center of the rear wheels (rear axle) on left side plane  
 (7) Over the center of the rear wheels (rear axle) on right side plane  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

37. Type of Fuel Tank-1 1
38. Type of Fuel Tank-2 C  
 (0) No fuel tank (electrical vehicle)  
 (1) Metallic  
 (2) Non-metallic  
 (9) Unknown

39. Location of Fuel Tank-1 4
40. Location of Fuel Tank-2 C  
 (0) No fuel tank  
 (1) Aft of center of the rear wheels (rear axle) centered  
 (2) Aft of center of the rear wheels (rear axle) left side  
 (3) Aft of center of the rear wheels (rear axle) right side  
 (4) Forward of center of the rear wheels (rear axle) centered  
 (5) Forward of center of the rear wheels (rear axle) left side  
 (6) Forward of center of the rear wheels (rear axle) right side  
 (7) Over center of the rear wheels (rear axle)  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

41. Damage to Fuel Tank-1 1
42. Damage to Fuel Tank-2 C  
 (0) No fuel tank  
 (1) No damage to fuel tank  
 (2) Deformed, no seam failure  
 (3) Deformed, with a seam failure  
 (4) Punctured  
 (5) Lacerated (ripped)  
 (6) Abraded (scraped)  
 (7) Filler neck separation from the fuel tank  
 (8) Other damage (specify): \_\_\_\_\_  
 (9) Unknown



43. Leakage Location of Fuel System-1

1

44. Leakage Location of Fuel System-2

0

(0) No fuel tank

(1) No fuel leakage

*Primary Area Of Leakage*

(2) Tank

(3) Filler neck

(4) Cap

(5) Lines/pump/filter

(6) Vent/emission recovery

(8) Other (specify): \_\_\_\_\_

(9) Unknown

45. Fuel Type-1

0 1

46. Fuel Type-2

0 0*Single Fuel Type*

(00) No fuel tank

(01) Gasoline

(02) Diesel

(03) CNG (Compressed Natural Gas)

(04) LPG (Liquid Petroleum Gas) also known as Propane

(05) LNG (Liquid Natural Gas)

(06) Methanol (M100 or M85)

(07) Ethanol (E100 or E85)

(08) Other (Hydrogen or others) (specify): \_\_\_\_\_

*Electric Powered or Electric/Solar Powered Vehicles*

(10) Lead Acid Battery

(11) Nickel-Iron Battery

(12) Nickel-Cadmium Battery

(13) Sodium Metal Chloride Battery

(14) Sodium Sulfur Battery

(18) Other (Specify): \_\_\_\_\_

(98) Other Hybrid (specify): \_\_\_\_\_

(99) Unknown fuel type

47. Is This Vehicle Equipped With More Than Two Fuel Tanks?

0

(0) No (one or two tanks only)

*Yes - More Than Two Tanks*(1) Yes -- no damage to any tank or filler cap and no fuel system leakage(2) Yes -- no damage to any tank or filler cap but there is fuel system leakage (specify leakage location): \_\_\_\_\_(3) Yes -- damage to an additional tank or filler cap and there is fuel system leakage (specify the following):

Type of tank \_\_\_\_\_

Tank location \_\_\_\_\_

Filler cap location \_\_\_\_\_

Tank damage \_\_\_\_\_

Location of leakage \_\_\_\_\_

Type of fuel \_\_\_\_\_

(9) Unknown if more than two tanks

**COMMENTS**


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\*\*\* STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED \*\*\*

(GV10=0)

DO NOT COMPLETE THE INTERIOR VEHICLE FORM.

# EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	3. Vehicle Number <u>02</u>
2. Case Number - Stratum <u>9615</u>	

## VEHICLE IDENTIFICATION

VIN 2G1WW12MX59 Model Year 95

Vehicle Make (specify): Chevrolet Vehicle Model (specify): Monte Carlo

## LOCATOR

Locate the end of the damage with respect to the vehicle's damaged center point or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage <sup>pcm</sup>	Location of Field L	Location of Max Crush
01	Rear Bumper 4" @ of R to Lgt Rear Corner	Whole width 126 cm (49.6")	C <sub>1</sub>

## CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

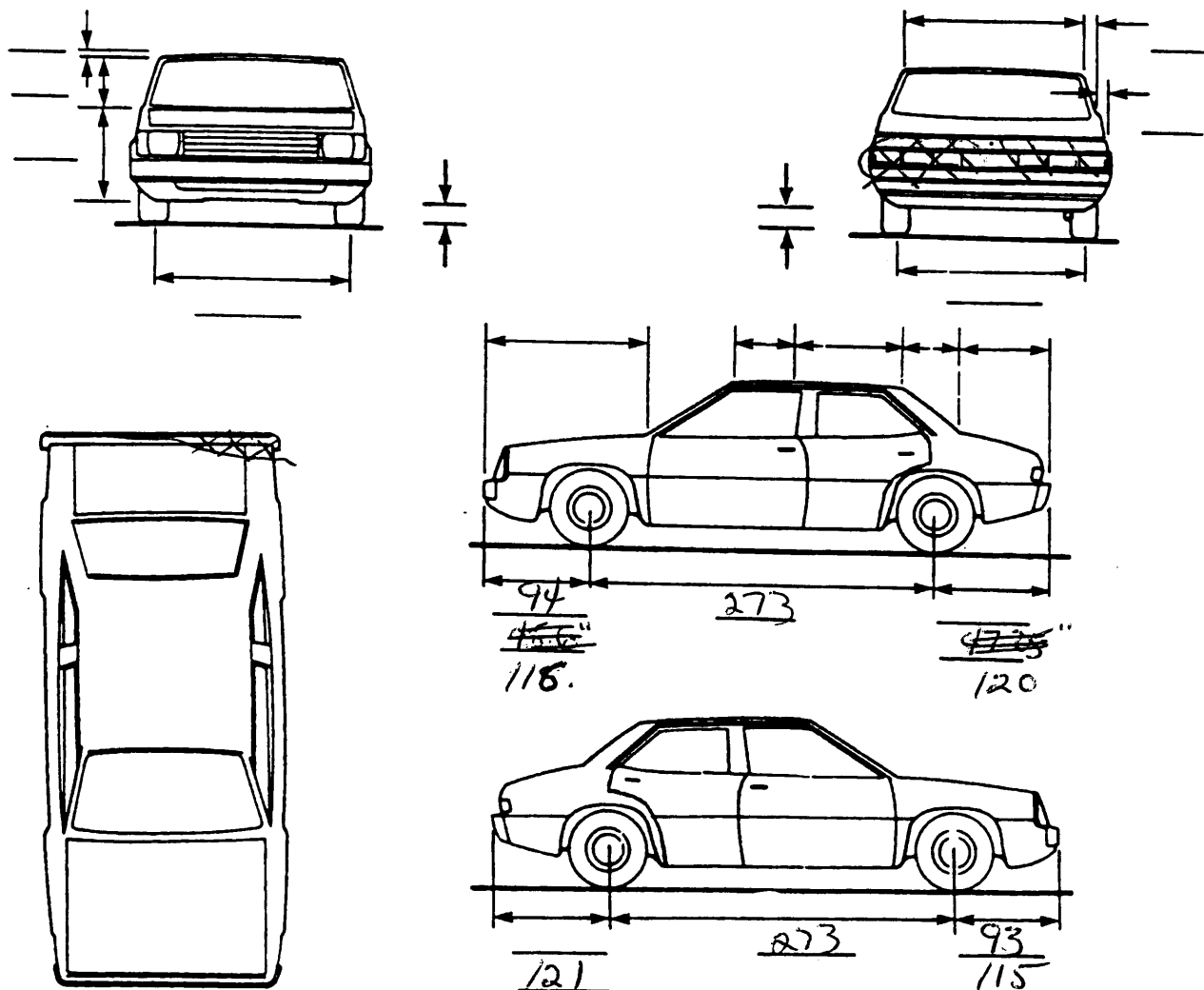
Specific Impact Number	Plane of Impact C-Measurements	Direct Damage		Field L	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	±D
		Width (CDC)	Max Crush								
	Bumper	59.7	32.9	126	58.4	45.1	34.6	26.7	21.3	18.7	0
	on										
	Reinforcement										
	Free space				25.5	17.0	15.5	15.5	17.0	25.5	
	to										
	Reinforcement										
	Crush				32.9	28.1	19.1	11.2	4.3	0	



## VEHICLE DAMAGE SKETCH

<b>TIRE—WHEEL DAMAGE</b> a. Rotation physically restricted RF <u>2</u> LF <u>1</u> RR <u>1</u> LR <u>1</u> (1) Yes (2) No (8) NA (9) Unk.		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>273</u> cm Overall Length <u>510</u> cm Maximum Width <u>184</u> cm Curb Weight <u>1500</u> kg Average Track <u>150</u> cm Front Overhang <u>116</u> cm Rear Overhang <u>120</u> cm Undeformed End Width <u>126</u> cm Engine Size: cyl./displ. <u>V-6, 3.1</u> L		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF ± _____° LF ± _____° RR ± _____° LR ± _____° Within ± 5 degrees
<b>TYPE OF TRANSMISSION</b> <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic END SHIFT ≥ 10 CM <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>DRIVE WHEELS</b> <input checked="" type="checkbox"/> FWD <input checked="" type="checkbox"/> RWD <input type="checkbox"/> 4WD Approximate Cargo Weight <u>0</u> kg		

## MEASUREMENTS IN CENTIMETERS



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

## CODES FOR OBJECT CONTACTED

(99) Unknown event or object

[illegible]



## COLLISION DEFORMATION CLASSIFICATION

## HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>01</u>	5. <u>01</u>	6. <u>DL</u>	7. <u>R</u>	8. <u>Y</u>	9. <u>E</u>	10. <u>W</u>	11. <u>02</u>

## Second Highest Delta "V"

12. _____	13. _____	14. _____	15. _____	16. _____	17. _____	18. _____	19. _____
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## CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

## HIGHEST DELTA "V"

20. <u>L</u>	21. <u>C<sub>1</sub></u>	<u>C<sub>2</sub></u>	<u>C<sub>3</sub></u>	<u>C<sub>4</sub></u>	<u>C<sub>5</sub></u>	<u>C<sub>6</sub></u>	22. <u>± D</u>
<u>126</u>	<u>32.9</u>	<u>28.1</u>	<u>19.1</u>	<u>11.2</u>	<u>4.3</u>	<u>0</u>	<u>+ 0</u>

## Second Highest Delta "V"

23. <u>L</u>	24. <u>C<sub>1</sub></u>	<u>C<sub>2</sub></u>	<u>C<sub>3</sub></u>	<u>C<sub>4</sub></u>	<u>C<sub>5</sub></u>	<u>C<sub>6</sub></u>	25. <u>± D</u>
_____	_____	_____	_____	_____	_____	_____	<u>+</u>
_____	_____	_____	_____	_____	_____	_____	<u>-</u>

26. Undeformed End Width  
(Coded when highest severity impact is an end plane impact.) 126  
 \_\_\_\_\_ Code to the nearest centimeter  
 (250) 250 centimeters or more  
 (998) No highest severity end plane impact  
 (999) Unknown

27. Direct Damage Width  
(For highest severity impact) 60  
 \_\_\_\_\_ Code to the nearest centimeter  
 (250) 250 centimeters or more  
 (999) Unknown

28. Original Wheelbase  
 \_\_\_\_\_ Code to the nearest centimeter  
 (650) 650 centimeters or more  
 (999) Unknown  
 \_\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters

29. Original Average Track Width  
 \_\_\_\_\_ Code to the nearest centimeter  
 (185) 185 centimeters or more  
 (999) Unknown  
 \_\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters

**FUEL SYSTEM**

30. Are CDCs Documented but Not Coded on The Automated File? 0  
 (0) No  
 (1) Yes
31. Researcher's Assessment of Vehicle Disposition 1  
 (0) Not towed due to vehicle damage  
 (1) Towed due to vehicle damage  
 (9) Unknown
32. Is This A Multi-Stage Manufactured Vehicle And/Or A Certified Altered Vehicle? 0  
 (0) No post manufacturer modifications  
 (1) Yes - post manufacturer modifications (specify): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 (Include photograph of CERTIFICATION PLACARD in case report)  
 (9) Unknown if vehicle is modified

**FIRE OCCURRENCE**

33. Fire Occurrence 0  
 (0) No fire  
 Yes, fire occurred  
 (1) Minor  
 (2) Major  
 (9) Unknown
34. Origin of Fire 0  
 (0) No fire  
 (1) Vehicle exterior (front, side, back, top)  
 (2) Exhaust system  
 (3) Fuel tank (and other fuel retention system parts)  
 (4) Engine compartment  
 (5) Cargo/trunk compartment  
 (6) Instrument panel  
 (7) Passenger compartment area  
 (8) Other location (specify): \_\_\_\_\_  
 (9) Unknown

35. Location of Fuel Tank-1 Filler Cap 2
36. Location of Fuel Tank-2 Filler Cap 0  
 (0) No fuel tank  
 (1) On back plane  
 (2) Aft of center of the rear wheels (rear axle) on left side plane  
 (3) Aft of center of the rear wheels (rear axle) on right side plane  
 (4) Forward of center of the rear wheels (rear axle) on left side plane  
 (5) Forward of center of the rear wheels (rear axle) on right side plane  
 (6) Over the center of the rear wheels (rear axle) on left side plane  
 (7) Over the center of the rear wheels (rear axle) on right side plane  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown
37. Type of Fuel Tank-1 1
38. Type of Fuel Tank-2 0  
 (0) No fuel tank (electrical vehicle)  
 (1) Metallic  
 (2) Non-metallic  
 (9) Unknown
39. Location of Fuel Tank-1 4
40. Location of Fuel Tank-2 0  
 (0) No fuel tank  
 (1) Aft of center of the rear wheels (rear axle) centered  
 (2) Aft of center of the rear wheels (rear axle) left side  
 (3) Aft of center of the rear wheels (rear axle) right side  
 (4) Forward of center of the rear wheels (rear axle) centered  
 (5) Forward of center of the rear wheels (rear axle) left side  
 (6) Forward of center of the rear wheels (rear axle) right side  
 (7) Over center of the rear wheels (rear axle)  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown
41. Damage to Fuel Tank-1 10
42. Damage to Fuel Tank-2 0  
 (0) No fuel tank  
 (1) No damage to fuel tank  
 (2) Deformed, no seam failure  
 (3) Deformed, with a seam failure  
 (4) Punctured  
 (5) Lacerated (ripped)  
 (6) Abraded (scraped)  
 (7) Filler neck separation from the fuel tank  
 (8) Other damage (specify): \_\_\_\_\_  
 (9) Unknown





**ATTACHMENT F**

**NASS Interior Vehicle Form**



## INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number \_\_\_\_\_

2. Case Number - Stratum 96-15

3. Vehicle Number 01

### INTEGRITY

4. Passenger Compartment Integrity 00

(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (back door)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window (backlight)
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window (side window and backlight)
- (12) Windshield and side window
- (13) Door and side window
- (98) Other combination of above (specify): \_\_\_\_\_

(99) Unknown \_\_\_\_\_

Door, Tailgate or Hatch Opening

5. LF 1 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code Ø

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

- (0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

### GLAZING

Type of Window/Windshield Glazing

15. WS 1 16. LF 2 17. RF 2 18. LR 2 19. RR 2

20. BL 2 21. Roof 0 22. Other 0

- (0) No glazing
- (1) AS-1 — Laminated
- (2) AS-2 — Tempered
- (3) AS-3 — Tempered-tinted (original)
- (4) AS-2 — Tempered-with after market tint
- (5) AS-3 — Tempered-tinted (with additional after market tint)
- (6) AS-14 — Glass/Plastic
- (7) Glazing removed prior to accident
- (8) Other (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

Window Precrash Glazing Status

23. WS 1 24. LF 2 25. RF 2 26. LR 2 27. RR 2

28. BL 1 29. Roof 0 30. Other 0

- (0) No glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (7) Glazing removed prior to accident
- (9) Unknown \_\_\_\_\_

Glazing Damage from Impact Forces

31. WS 2 32. LF 1 33. RF 1 34. LR 1 35. RR 1

36. BL 1 37. Roof 0 38. Other 0

- (0) No glazing
- (1) No glazing damage from impact forces
- (2) Glazing in place and cracked from impact forces
- (3) Glazing in place and holed from impact forces
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (9) Unknown if damaged \_\_\_\_\_

Glazing Damage from Occupant Contact

39. WS 1 40. LF 1 41. RF 1 42. LR 1 43. RR 1

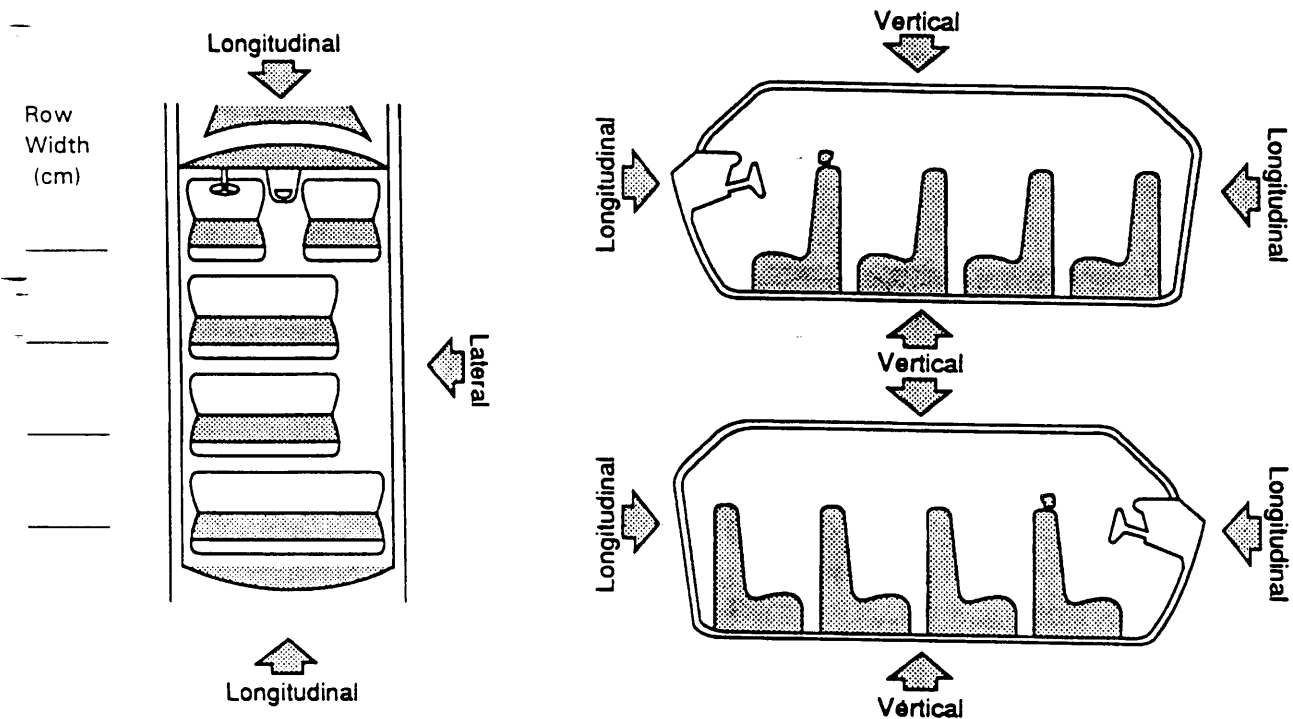
44. BL 1 45. Roof 0 46. Other 0

- (0) No glazing
- (1) No occupant contact to glazing
- (2) Glazing contacted by occupant but no glazing damage
- (3) Glazing in place and cracked by occupant contact
- (4) Glazing in place and holed by occupant contact
- (5) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (6) Glazing out-of-place by occupant contact and holed by occupant contact
- (7) Glazing removed prior to accident
- (8) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant \_\_\_\_\_



# INTRUSION WORKSHEET

**NOTE: SKETCH INTRUDED AREAS**



LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are In Centimeters)			DOMINANT CRUSH DIRECTION
		COMPARISON VALUE	INTRUDED VALUE	INTRUSION	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	
		—		=	

## OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

## INTRUDING COMPONENT

*Interior Components*

- (01) Steering assembly  
 (02) Instrument panel left  
 (03) Instrument panel center  
 (04) Instrument panel right  
 (05) Toe pan  
 (06) A (A1/A2)-pillar  
 (07) B-pillar  
 (08) C-pillar  
 (09) D-pillar  
 (10) Side panel - forward of the A1/A2-pillar  
 (11) Door panel (side)  
 (12) Side panel - rear of the B-pillar  
 (13) Roof (or convertible top)  
 (14) Roof side rail  
 (15) Windshield  
 (16) Windshield header  
 (17) Window frame  
 (18) Floor pan (includes sill)  
 (19) Backlight header  
 (20) Front seat back  
 (21) Second seat back  
 (22) Third seat back  
 (23) Fourth seat back  
 (24) Fifth seat back  
 (25) Seat cushion  
 (26) Back door/panel (e.g., tailgate)  
 (27) Other interior component (specify):

NO INTRUSION

*Exterior Components*

- (30) Hood  
 (31) Outside surface of this vehicle (specify):  
 (32) Other exterior object in the environment (specify):  
 (33) Unknown exterior object  
 (97) Catastrophic  
 (98) Intrusion of unlisted component(s) (specify):  
 (99) Unknown

## LOCATION OF INTRUSION

## Front Seat

- (11) Left  
 (12) Middle  
 (13) Right

## Fourth Seat

- (41) Left  
 (42) Middle  
 (43) Right

## Second Seat

- (21) Left  
 (22) Middle  
 (23) Right

- (97) Catastrophic  
 (98) Other enclosed area (specify)

(99) Unknown

## Third Seat

- (31) Left  
 (32) Middle  
 (33) Right

## MAGNITUDE OF INTRUSION

- (1)  $\geq 3$  centimeters but  $< 8$  centimeters  
 (2)  $\geq 8$  centimeters but  $< 15$  centimeters  
 (3)  $\geq 15$  centimeters but  $< 30$  centimeters  
 (4)  $\geq 30$  centimeters but  $< 46$  centimeters  
 (5)  $\geq 46$  centimeters but  $< 61$  centimeters  
 (6)  $\geq 61$  centimeters  
 (7) Catastrophic  
 (9) Unknown

## DOMINANT CRUSH DIRECTION

- (1) Vertical  
 (2) Longitudinal  
 (3) Lateral  
 (7) Catastrophic  
 (9) Unknown

**STEERING RIM/SPOKE DEFORMATION**

(All Measurements Are in Centimeters)

COMPARISON VALUE	—	DAMAGE VALUE	=	DEFORMATION
------------------	---	--------------	---	-------------

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--



**STEERING COLUMN****INSTRUMENT PANEL**

87. Steering Column Type

2

- (1) Fixed column  
 (2) Tilt column  
 (3) Telescoping column  
 (4) Tilt and telescoping column  
 (8) Other column type (specify): \_\_\_\_\_  
 (9) Unknown

88. Tilt Steering Column Adjustment

3

- (0) No tilt steering column  
 (1) Full up  
 (2) Between full up and center  
 (3) Center  
 (4) Between center and full down  
 (5) Full down  
 (9) Unknown

89. Telescoping Steering Column Adjustment

0

- (0) No telescoping steering column  
 (1) Full back  
 (2) Between full back and midpoint  
 (3) Midpoint  
 (4) Between midpoint and full forward  
 (5) Full forward  
 (9) Unknown

90. Steering Rim/Spoke Deformation

0 0

- Code actual measured  
 deformation to the nearest centimeter  
 (00) No steering rim deformation  
 (01-14) Actual measured value in centimeters  
 (15) 15 centimeters or more  
 (98) Observed deformation cannot be measured  
 (99) Unknown

91. Location of Steering Rim/Spoke Deformation

0 0

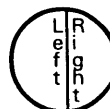
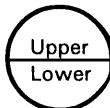
- (00) No steering rim deformation

*Quarter Sections*

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D

*Half Sections*

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke  
 (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown



92. Odometer Reading

0 5 2,000

- \_\_\_\_\_ kilometers  
 Code to the nearest 1,000 kilometers  
 (000) No odometer  
 (001) Less than 1,500 kilometers  
 (500) 499,500 kilometers or more  
 (999) Unknown

\_\_\_\_\_ miles X 1.6093 = 52.046 kilometers

Source: \_\_\_\_\_

93. Instrument Panel Damage from  
Occupant Contact?0

- (0) No  
 (1) Yes  
 (9) Unknown

94. Type of Knee Bolster Covering

2

- (0) No knee bolster  
 (1) Padded  
 (2) Rigid plastic  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

95. Knee Bolsters Deformed from  
Occupant Contact?1

- (0) No knee bolster  
 (1) No deformation  
 (2) Yes - deformation  
 (9) Unknown

96. Did Glove Compartment Door Open  
During Collision(s)?2

- (0) No glove compartment door  
 (1) No - door did not open  
 (2) Yes - door opened  
 (9) Unknown

97. Adaptive (Assistive) Driving Equipment

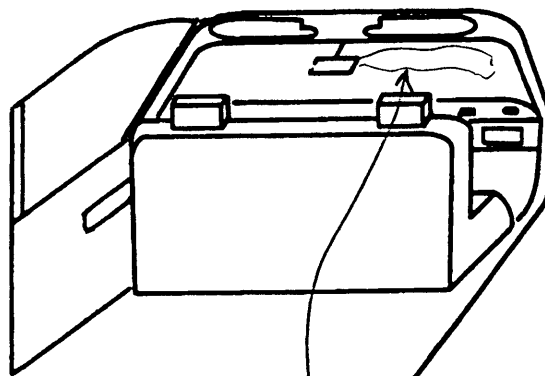
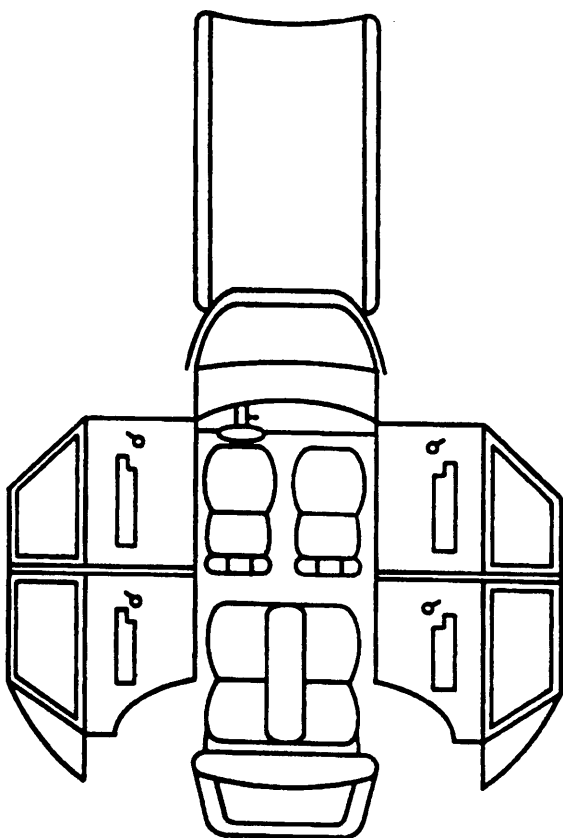
0

- (0) No adaptive driving equipment  
 (1) Adaptive driving equipment installed  
 (Check all that apply.)  
☐ Hand controls for braking/acceleration  
☐ Steering control devices (attached to OEM steering wheel)  
☐ Steering knob attached to steering wheel  
☐ Low effort power steering (unit or device)  
☐ Replacement steering wheel (i.e., reduced diameter)  
☐ Joy-stick steering controls  
☐ Wheelchair tie-downs  
☐ Modification to seat belts (specify): \_\_\_\_\_  
☐ Additional or relocated switches (specify): \_\_\_\_\_  
☐ Raised roof  
☐ Wall-mounted head rest (used behind wheelchair)  
☐ Other adaptive device (specify): \_\_\_\_\_

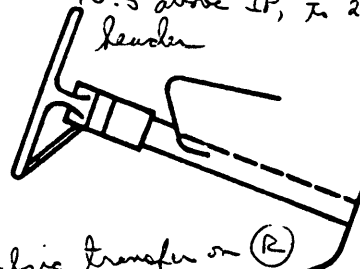
(9) Unknown

## VEHICLE INTERIOR SKETCHES

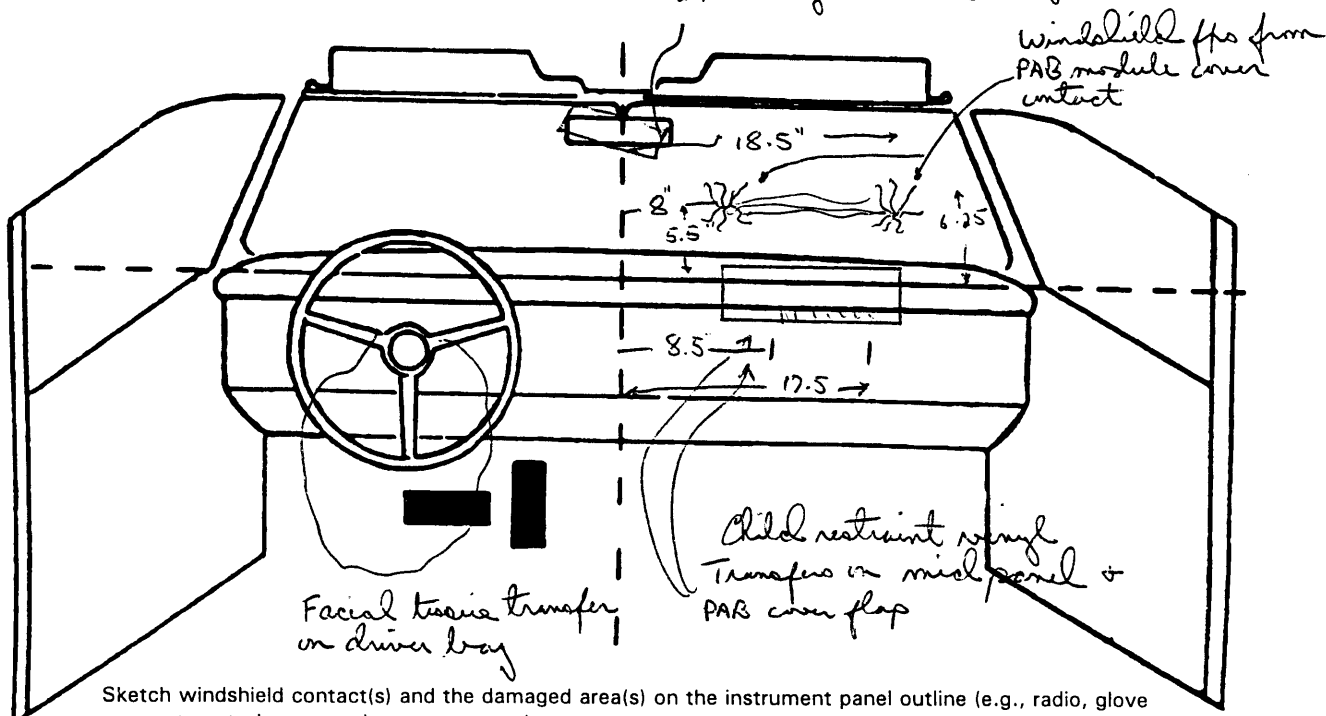
Note area of ejection/entrapment



PAB fabric transfer on windshield starts 1" (L) of center, extends 21.25" to (R), vertically extends 10.5" above IP, to 2.5" below header



PAB fabric transfer on (R) side of rear view mirror, 2" vertically x 2.5" horizontally



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	001	—	—	Air Bag fabric transfer	1
B	001	—	—	PAB cover flap contact / cracks	1
C	002	—	—	PAB fabric contact, transfer / displaced	1
D	170	1	FACE/NECK	Tissue abrasion	1
E	012	—	—	child restraint contact, transfer	1
F	185	—	—	child restraint contact, transfer	1
G	180	—	—	child restraint contact, transfer	1
H					
I					
J					
K					
L					
M					
N					

## FRONT

- (001) Windshield  
 (002) Mirror  
 (003) Sunvisor  
 (004) Steering wheel rim  
 (005) Steering wheel hub/spoke  
 (006) Steering wheel (combination of codes 004 and 005)  
 (007) Steering column, transmission selector lever, other attachment  
 (008) Cellular telephone or CB radio  
 (009) Add on equipment (e.g., tapedeck, air conditioner)  
 (010) Left instrument panel and below  
 (011) Center instrument panel and below  
 (012) Right instrument panel and below  
 (013) Glove compartment door  
 (014) Knee bolster  
 (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)  
 (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)  
 (017) Windshield reinforced by exterior object, (specify):  
 (019) Other front object (specify):

## CODES FOR INTERIOR COMPONENTS

## LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests  
 (052) Left side hardware or armrest  
 (053) Left A (A1/A2)-pillar  
 (054) Left B-pillar  
 (055) Other left pillar (specify):  
 (056) Left side window glass  
 (057) Left side window frame  
 (058) Left side window sill  
 (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.  
 (060) Other left side object (specify):

## RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests  
 (102) Right side hardware or armrest  
 (103) Right A (A1/A2)-pillar  
 (104) Right B-pillar  
 (105) Other right pillar (specify):  
 (106) Right side window glass  
 (107) Right side window frame  
 (108) Right side window sill  
 (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.  
 (110) Other right side object (specify):

## INTERIOR

- (151) Seat, back support  
 (152) Belt restraint webbing/buckle  
 (153) Belt restraint B-pillar or door frame attachment point  
 (154) Other restraint system component (specify):  
 (155) Head restraint system  
 (160) Other occupants (specify):  
 (161) Interior loose objects  
 (162) Child safety seat (specify):  
 (163) Other interior object (specify):

## AIR BAG

- (170) Air bag-driver side  
 (175) Air bag compartment cover-driver side  
 (180) Air bag-passenger side  
 (185) Air bag compartment cover-passenger side  
 (190) Other air bag (specify)  
 (195) Other air bag compartment cover (specify)

## ROOF

- (201) Front header  
 (202) Rear header  
 (203) Roof left side rail  
 (204) Roof right side rail  
 (205) Roof or convertible top

## FLOOR

- (251) Floor (including toe pan)  
 (252) Floor or console mounted transmission lever, including console  
 (253) Parking brake handle  
 (254) Foot controls including parking brake

## REAR

- (301) Backlight (rear window)  
 (302) Backlight storage rack, door, etc.  
 (303) Other rear object (specify):

## ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration  
 (402) Steering control devices (attached to OEM steering wheel)  
 (403) Steering knob attached to steering wheel  
 (405) Replacement steering wheel (i.e., reduced diameter)  
 (406) Joy stick steering controls  
 (407) Wheelchair tie-downs  
 (408) Modification to seat belts, (specify):  
 (409) Additional or relocated switches, (specify):  
 (410) Raised roof  
 (411) Wall mounted head rest (used behind wheel chair)  
 (412) Other adaptive device (specify):

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain  
 (2) Probable  
 (3) Possible  
 (9) Unknown



# MANUAL RESTRAINTS

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a child safety seat is present, encode the data on the back of this page 11.

If the vehicle has automatic restraints available, left, encode the appropriate data on page 6.

		Left	Center	Right
FIRST	A-Availability	4	/	4
	B-Evidence of usage			7
	C-Used in this crash?	00		14
	D-Proper Use	0		7
	E-Failure Modes	0		1
	F-Anchorage Adjustment	2		4
SECOND	A-Availability	4	3	4
	B-Evidence of usage	00	00	00
	C-Used in this crash?	-	-	-
	D-Proper Use	/	/	/
	E-Failure Modes			
	F-Anchorage Adjustment			
OTHER	A-Availability	/	/	/
	B-Evidence of usage			
	C-Used in this crash?			
	D-Proper Use			
	E-Failure Modes			
	F-Anchorage Adjustment			

## A-Manual (Active) Belt System Availability

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

### Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

- (9) Unknown

## B/C-Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown
- (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat - type unknown
- (18) Other belt used with child safety seat (specify):
- (99) Unknown if belt used

## D-Proper Use of Manual (Active) Belts

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

### Belt Used Improperly

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): Lap belt not on base unit, Shoulder belt not around shell.
- (8) Other improper use of manual belt system (specify):

- (9) Unknown

## F-Shoulder Belt Upper Anchorage Adjustment

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

### Adjustable shoulder Belt Upper Anchorage

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

## E-Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):
- (6) Broken retractor
- (7) Combination of above (specify):
- (8) Other manual belt failure (specify):
- (9) Unknown

**AUTOMATIC RESTRAINTS**

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

**AIR BAGS**

		Frontal Air Bags--Left Front	Frontal Air Bags--Right Front	Other Air Bag
F I R S T	Availability/Function			0
	Deployment			0
	Failure			0

**Air Bag System Availability/Function**

(0) Not equipped/not available

(1) Air bag

*Non-functional*

(2) Air bag disconnected (specify): \_\_\_\_\_

(3) Air bag not reinstalled \_\_\_\_\_

(9) Unknown

**Air Bag System Deployment****(This Occupant Position)**

(0) Not equipped/not available

(1) Deployed during accident (as a result of impact)

(2) Deployed inadvertently just prior to accident

(3) Deployed, accident sequence undetermined

(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)

(5) Unknown if deployed

(7) Nondeployed

(9) Unknown

**Are There Indications of Air Bag****System Failure? (This Occupant Position)**

(0) Not equipped/not available

(1) No

(2) Yes (specify): \_\_\_\_\_

(9) Unknown

**AUTOMATIC BELTS**

		Left	Right
F I R S T	A-Availability/Function	0	0
	B-Use	0	0
	C-Type	0	0
	D-Proper Use	0	0
	E-Failure Modes	0	0

**A-Automatic (Passive) Belt System Availability/Function**

(0) Not equipped/not available

(1) 2 point automatic belts

(2) 3 point automatic belts

(3) Automatic belts - type unknown

*Non-functional*

(4) Automatic belts destroyed or rendered inoperative

(9) Unknown

**B-Automatic (Passive) Belt System Use**

(0) Not equipped/not available/destroyed or rendered inoperative

(1) Automatic belt in use

(2) Automatic belt not in use (manually disconnected, motorized track inoperative)

(3) Automatic belt use unknown

(9) Unknown

**C-Automatic (Passive) Belt System Type**

(0) Not equipped/not available

(1) Non-motorized system

(2) Motorized system

(9) Unknown

**D-Proper Use of Automatic (Passive) Belt System**

(0) Not equipped/not available/not used

(1) Automatic belt used properly

(2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

(3) Automatic shoulder belt worn under arm

(4) Automatic shoulder belt worn behind back

(5) Automatic belt worn around more than one person

(6) Lap portion of automatic belt worn on abdomen

(7) Automatic lap and shoulder belt or

automatic shoulder belt used

improperly

with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of automatic belt system (specify): \_\_\_\_\_

(9) Unknown

**E-Automatic (Passive) Belt Failure Modes During Accident**

(0) Not equipped/not available/not in use

(1) No automatic belt failure(s)

(2) Torn webbing (stretched webbing not included)

(3) Broken buckle or latchplate

(4) Upper anchorage separated

(5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor

(7) Combination of above (specify): \_\_\_\_\_

(8) Other automatic belt failure (specify): \_\_\_\_\_

(9) Unknown

## FIRST SEAT FRONTAL AIR BAGS

NOTES: Encode the applicable data *for the driver and first seat passenger* in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

	Driver	Passenger
A-Type of air bag?	1	1
B-Flaps open at tear points?	2	2
C-Flaps damaged?	1	2
D-Air bag damaged?	01	01
E-Source of air bag damage	01	01
F-Air bag tethered?	1	1
G-Air bag have vent ports?	2	2
H-Other occupant contact air bag?	1	1
I-Occupant wearing eyewear?	1	1

### A-Type of Air Bag

- (0) Not equipped/not available
- (1) Original manufacturer installed system
- (2) Retrofitted air bag
- (3) Replacement air bag
- (8) Unknown type of air bag
- (9) Unknown

### B-Did Air Bag Module Cover Flap(s) Open At Designated Tear Points?

- (0) Not equipped/not available
- (1) No
- (2) Yes
- (3) Deployed, unknown if flap(s) opened at designated tear points
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

### C-Were Air Bag Module Cover Flap(s) Damaged?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): Transfer/scuffs
- (3) Deployed, unknown if air bag module cover flap(s) damaged
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

### D-Was There Damage To The Air Bag?

- (00) Not equipped/not available
- (01) Not damaged

#### Yes - Air Bag Damage

- (02) Ruptured
- (03) Cut
- (04) Torn
- (05) Holed
- (06) Burned
- (07) Abraded
- (88) Other damage (specify):

- Transfer/abrasion/tear
- (95) Damaged, details unknown
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

### E-Source of Air Bag Damage

- (00) Not equipped/not available
- (01) Not damaged
- (02) Object worn by occupant, (specify):
- (03) Object carried by occupant, (specify):
- (04) Adaptive/assistive controls, (specify):
- (05) Fire in vehicle
- (06) Thermal burns
- (07) Rescue or emergency efforts
- (88) Other damage source (specify):
- (95) Damaged, unknown source
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

### F-Was The Air Bag Tethered?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of tether straps):
- (3) Deployed, unknown if tethered
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

### G-Did The Air Bag Have Vent Ports?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of vent ports): 2
- (3) Deployed, unknown if vent ports present
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

### H-Was the Air Bag in this Occupant's Position Contacted by Another Occupant?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):
- (3) Deployed, unknown if other occupant contact to air bag
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

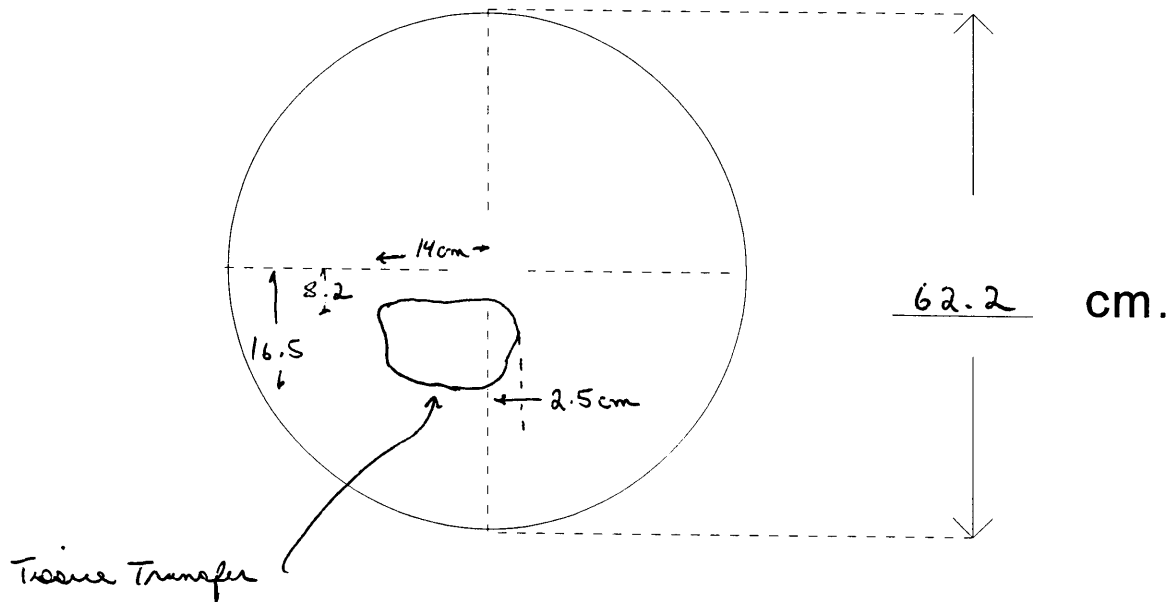
### I-Was This Occupant Wearing Eye-wear?

- (0) Not equipped/not available
- (1) No
- (2) Eyeglasses/sunglasses
- (3) Contact lenses
- (4) Deployed, unknown if eyewear worn
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

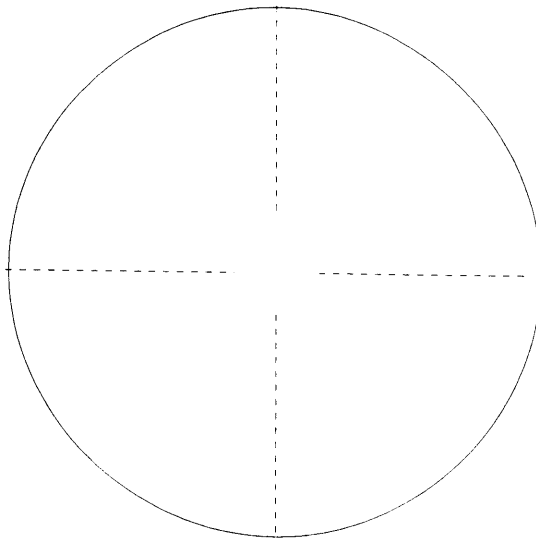


## DRIVER AIR BAG DAMAGE AND CONTACT SKETCHES

## 1. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Front)



## 2. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Back)

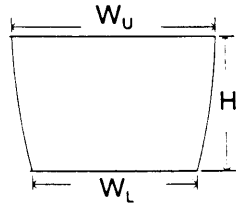


## DRIVER AIR BAG SKETCHES (Cont'd)

### 3. DRIVER AIR BAG MODULE COVER FLAP SIZE (SINGLE)

width ( $W_U$ ) \_\_\_\_\_ width ( $W_L$ ) \_\_\_\_\_

height ( $H$ ) \_\_\_\_\_

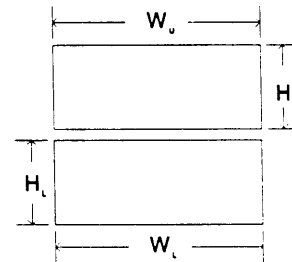


### 4. DRIVER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap                      b. Lower Flap

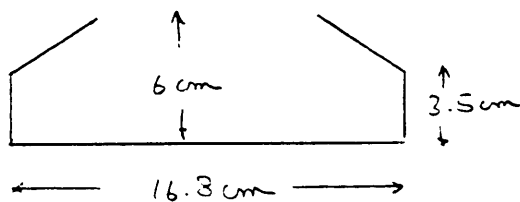
width ( $W_U$ ) \_\_\_\_\_ width ( $W_L$ ) \_\_\_\_\_

height ( $H_U$ ) \_\_\_\_\_ height ( $H_L$ ) \_\_\_\_\_



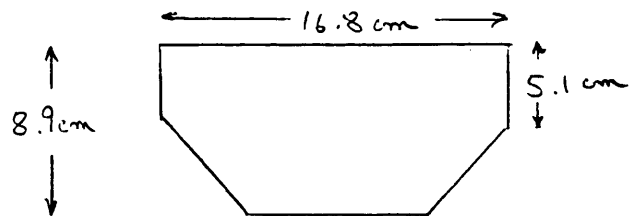
### 5. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

UPPER

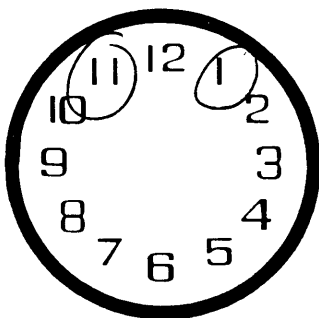


### 6. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

LOWER

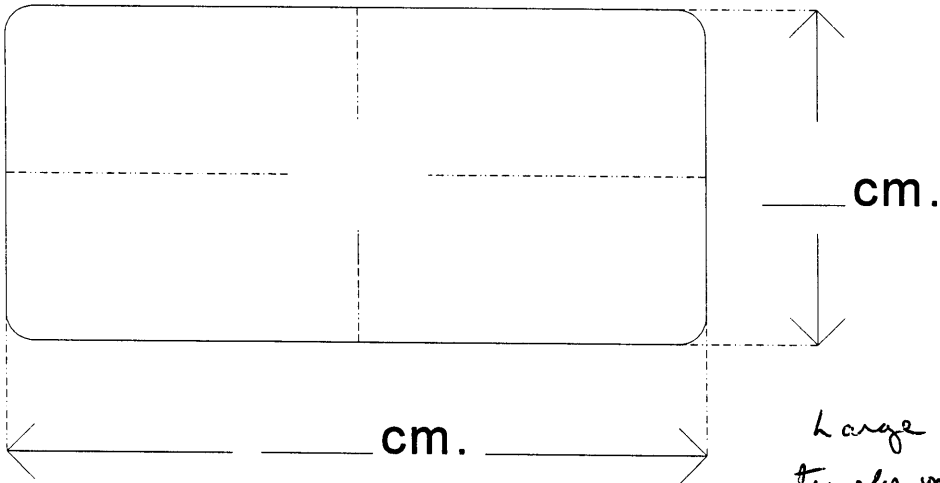


### 7. SKETCH LOCATION OF CIRCULAR AIR BAG VENT PORTS



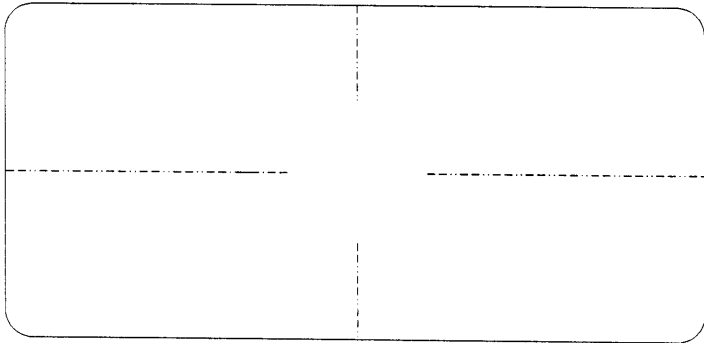
PASSENGER AIR BAG DAMAGE AND CONTACT SKETCHES

1. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Front)



Large black vinyl  
transfer on (R) side of  
PAB, 30.5" horizontally,  
begin 10.2cm outboard  
of inflator

2. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Back)



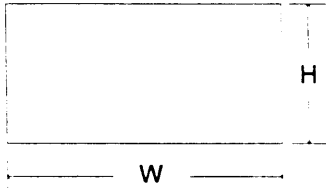


## PASSENGER AIR BAG SKETCHES (Cont'd)

### 3. PASSENGER AIR BAG MODULE COVER FLAP SIZE (SINGLE)

width (W) 34.8 cm

height (H) 16.5



### 4. PASSENGER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap

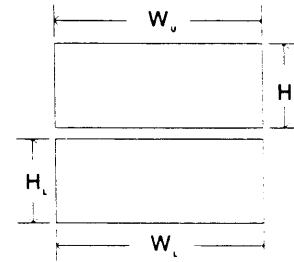
b. Lower Flap

width ( $W_U$ ) \_\_\_\_\_

width ( $W_L$ ) \_\_\_\_\_

height ( $H_U$ ) \_\_\_\_\_

height ( $H_L$ ) \_\_\_\_\_



### 5. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

### 6. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

### 7. SKETCH LOCATION OF RECTANGULAR AIR BAG VENT PORTS

10    11    12    1    2

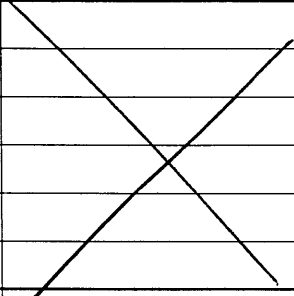
9

3

8    7    6    5    4

**HEAD RESTRAINTS/SEAT EVALUATION**

**NOTES:** Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found on the next page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
F I R S T	A-Head Restraint Type/Damage	3		3
	B-Seat Type	02		02
	C-Seat Orientation	1		1
	D-Seat Track Position	4		3
	E-Seat Back Incline Pre/Post Impact	23		23
	F-Seat Performance	1		1
S E C O N D	A-Head Restraint Type/Damage			
	B-Seat Type			
	C-Seat Orientation			
	D-Seat Track Position			
	E-Seat Back Incline Pre/Post Impact			
	F-Seat Performance			
T H I R D	A-Head Restraint Type/Damage			
	B-Seat Type			
	C-Seat Orientation			
	D-Seat Track Position			
	E-Seat Back Incline Pre/Post Impact			
	F-Seat Performance			
O T H E R	A-Head Restraint Type/Damage			
	B-Seat Type			
	C-Seat Orientation			
	D-Seat Track Position			
	E-Seat Back Incline Pre/Post Impact			
	F-Seat Performance			

**DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE  
(I.E., UNUSUAL OCCUPANT CONTACT PATTERN)**

**HEAD RESTRAINTS/SEAT EVALUATION****A-Head Restraint Type/Damage by Occupant at This Occupant Position**

- (0) No head restraints
- (1) Integral — no damage
- (2) Integral — damaged during accident
- (3) Adjustable — no damage
- (4) Adjustable — damaged during accident
- (5) Add-on — no damage
- (6) Add-on — damaged during accident
- (8) Other  
Specify): \_\_\_\_\_
- (9) Unknown

**B-Seat Type (this Occupant Position)**

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Box mounted seat (i.e., van type)
- (10) Other seat type (specify): \_\_\_\_\_
- (99) Unknown

**C-Seat Orientation (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

**D-Seat Track Adjusted Position Prior To Impact**

- (0) Occupant not seated or no seat

- (1) Non-adjustable seat track

**Adjustable Seat Track**

- (2) Seat at forward most track position
- (3) Seat between forward most and middle track positions
- (4) Seat at middle track position
- (5) Seat between middle and rear most track positions
- (6) Seat at rear most track position
- (9) Unknown

**E-Seat Back Incline Prior and Post Impact**

- (00) Occupant not seated or no seat
- (01) Not adjustable

**Upright prior to impact**

- (11) Moved to completely rearward position
- (12) Moved to rearward midrange position
- (13) Moved to slightly rearward position
- (14) Retained pre-impact position
- (15) Moved to slightly forward position
- (16) Moved to forward midrange position
- (17) Moved to completely forward position

**Slightly reclined prior to impact**

- (21) Moved to completely rearward position
- (22) Moved to rearward midrange position
- (23) Retained pre-impact position
- (24) Moved to upright position
- (25) Moved to slightly forward position
- (26) Moved to forward midrange position
- (27) Moved to completely forward position

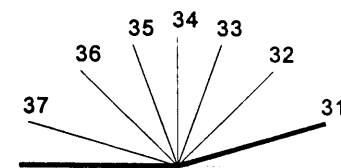
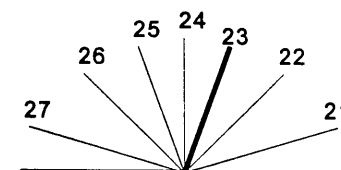
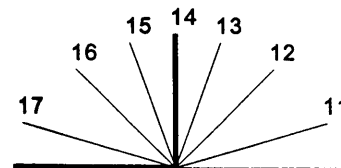
**Completely reclined prior to impact**

- (31) Retained pre-impact position
- (32) Moved to rearward midrange position
- (33) Moved to slightly rearward position
- (34) Moved to upright position
- (35) Moved to slightly forward position
- (36) Moved to forward midrange position
- (37) Moved to completely forward position

- (99) Unknown

**F-Seat Performance (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

Coding diagrams for *Seat Back Incline Position Prior and Post Impact*

**DESCRIBE ANY INDICATION OF  
ABNORMAL OCCUPANT POSTURE  
(I.E., UNUSUAL OCCUPANT  
CONTACT PATTERN)**



## CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number	02					
1. Type of Child Safety Seat	1					
2. Child Safety Seat Orientation	01					
3. Child Safety Seat Harness Usage	12					
4. Child Safety Seat Shield Usage	03					
5. Child Safety Seat Tether Usage	03					
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

### 1. Type of Child Safety Seat

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify):  
\_\_\_\_\_
- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

### 2. Child Safety Seat Orientation

- (00) No child safety seat
- Designed for Rear Facing for This Age/Weight
- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify):  
\_\_\_\_\_
- (09) Unknown orientation
- Designed for Forward Facing for This Age/Weight
- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):  
\_\_\_\_\_
- (19) Unknown orientation
- Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):  
\_\_\_\_\_
- (29) Unknown orientation
- (99) Unknown if child safety seat used

### 3. Child Safety Seat Harness Usage

### 4. Child Safety Seat Shield Usage

- 5. Child Safety Seat Tether Usage
- Note: Options Below Are Used for Variables 3-5.
- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

- (99) Unknown if child safety seat used

### 6. Child Safety Seat Make/Model (Specify make/model and occupant number)

*Evenflo Juvenile*

**EJECTION/ENTRAPMENT DATA**

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

**EJECTION**      No [☒]      Yes [ ☐ ]

Describe indications of ejection and body parts involved in partial ejection(s):

---



---



---



---



---

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

**Ejection**

- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, Unknown degree
- (9) Unknown

**Ejection Area**

- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear

## (7) Roof

- (8) Other area (e.g., back of pickup, etc.) (specify):

(9) Unknown

**Ejection Medium**

- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify):

## (5) Integral structure

- (8) Other medium (specify):

(9) Unknown

**Medium Status (Immediately Prior to Impact)**

- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

**ENTRAPMENT**      No [☒]      Yes [ ☐ ]

Describe entrapment mechanism: \_\_\_\_\_

---



---



---



---

Component(s): \_\_\_\_\_

---

(Note on vehicle interior sketch)

**ATTACHMENT G**

**NASS Occupant Forms**





# OCCUPANT ASSESSMENT FORM

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. ~~Primary Sampling Unit Number~~

2. Case Number - Stratum

9 6 1 5

3. Vehicle Number

0 1

4. Occupant Number

0 1

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age

2 3

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex

2

(1) Male

(2) Female-not reported pregnant

(3) Female-pregnant-1st trimester(1st-3rd month)

(4) Female-pregnant-2nd trimester(4th-6th month)

(5) Female-pregnant-3rd trimester(7th-9th month)

(6) Female-pregnant-term unknown

(9) Unknown

7. Occupant's Height

1 5 8

Code actual height to the nearest  
centimeter.

(999) Unknown

\_\_\_ inches X 2.54 = \_\_\_ centimeters

8. Occupant's Weight

6 6

Code actual weight to the nearest  
kilogram.

(999) Unknown

\_\_\_ pounds X .4536 = \_\_\_ kilograms

9. Occupant's Role

1

(1) Driver

(2) Passenger

(9) Unknown

## OCCUPANT'S SEATING

10. Occupant's Seat Position

1 1

*Front Seat*

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

*Second Seat*

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

*Third Seat*

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

*Fourth Seat*

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant's Posture

0

(0) Normal posture

*Abnormal posture*

(1) Kneeling or standing on seat

(2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with  
another occupant or to look out a rear  
window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in  
front of seat

(8) Other abnormal posture (specify):

(9) Unknown

## EJECTION/ENTRAPMENT

## 12. Ejection

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

0

## 13. Ejection Area

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

0

## 14. Ejection Medium

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

0

## 15. Medium Status (Immediately Prior To Impact)

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

0

## 16. Entrapment

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

0

## 17. Occupant Mobility

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or not oriented to time or place
- (2) Removed from vehicle due to perceived serious injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (8) Removed from vehicle for other reasons  
(specify): \_\_\_\_\_
- (9) Unknown

4

## BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 0 0

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

(02) Shoulder belt

(03) Lap belt

(04) Lap and shoulder belt

(05) Belt used—type unknown

(08) Other belt used (specify):

(12) Shoulder belt used with child safety seat

(13) Lap belt used with child safety seat

(14) Lap and shoulder belt used with child safety seat

(15) Belt used with child safety seat—type unknown

(18) Other belt used with child safety seat (specify):

(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 0

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 0

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Manual Shoulder Belt Upper Anchorage Adjustment 2

- (0) No manual shoulder belt
- (1) No upper anchorage adjustment for manual shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 0

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

24. Automatic (Passive) Belt System Use 0

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
- (3) Automatic belt use unknown
- (9) Unknown

25. Automatic (Passive) Belt System Type 0

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or

automatic shoulder belt used improperly with child safety seat (specify):

- (8) Other improper use of automatic belt system (specify):
- (9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other automatic belt failure (specify):

(9) Unknown



## POLICE REPORTED RESTRAINT USE

## AIR BAG SYSTEM FUNCTION

28. Police Reported Belt Use 1

- (0) None used  
 (1) Police did not indicate belt use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Automatic belt  
 (8) Other type belt, (specify):

(9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 1

- (0) No air bag available  
 (1) Police did not indicate air bag availability/function  
 (2) Deployed  
 (3) Not deployed  
 (4) Unknown if deployed  
 (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

- ☒ Vehicle inspection  
☐ Official injury data  
☐ Driver/occupant interview  
☐ Other (specify):

☐ Unknown if belt used

30. Frontal Air Bag System 1

Availability/Function

(This Occupant Position)

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled  
 (9) Unknown

31. Frontal Air Bag System Deployment 1

(This Occupant Position)

- (0) Not equipped/not available  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

32. Other Than First Seat Frontal Air Bag 0

Availability/Function

(This Occupant Position)

- (0) Not equipped/not available

- (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled  
 (9) Unknown

*Specify type of "other" air bag present:*

33. Air Bag(s) Deployment, Other Than First Seat Frontal 0

(This Occupant Position)

- (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

34. Are There Indications of Air Bag System Failure? 1

(This Occupant Position)

- (0) Not equipped/not available

- (1) No  
 (2) Yes (specify):

- (9) Unknown

## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 2

- (0) Not equipped/not available  
(1) No previous accidents

Yes

- (2) Previous accident(s) without deployment(s)  
(3) One previous accident with deployment  
(4) More than one previous accident with at least one deployment  
(8) Previous accidents, unknown deployment status  
(9) Unknown

36. Type of Air Bag 1

- (0) Not equipped/not available  
(1) Original manufacturer installed system  
(2) Retrofitted air bag  
(3) Replacement air bag  
(8) Unknown type of air bag  
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1

- (0) Not equipped/not available  
(1) No prior maintenance  
(2) Yes, prior maintenance (specify):  
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01

- (00) Not equipped/not available  
Code the accident event sequence number that initiated the air bag deployment  
(96) Deployed, unknown event  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

39. CDC For Air Bag Deployment Impact 1

- (0) Not equipped/not available  
(1) Highest delta V  
(2) Second highest delta V  
(3) Other non-coded delta V (specify):  
(6) Deployed, unknown event  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + 0 2 5

- ( \_000) Not equipped/not available  
Code the value of the delta V for the impact that initiated the air bag deployment  
( \_996) Deployment, unknown longitudinal Delta V  
( \_997) Not deployed  
( \_998) Unknown if deployed  
( \_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2

- (0) Not equipped/not available  
(1) No  
(2) Yes  
(3) Deployed, unknown if flap(s) opened at designated tear points  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 1

- (0) Not equipped/not available  
(1) No  
(2) Yes (specify):  
(3) Deployed, unknown if air bag module cover flap(s) damaged  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

43. Was There Damage To The Air Bag? 01

- (00) Not equipped/not available  
(01) Not damaged

Yes - Air Bag Damage

- (02) Ruptured  
(03) Cut  
(04) Torn  
(05) Holed  
(06) Burned  
(07) Abraded  
(88) Other damage (specify):

- (95) Damaged, details unknown  
(96) Deployed, unknown if damaged  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued***HEAD RESTRAINT AND SEAT EVALUATION**

44. Source of Air Bag Damage 01  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify): \_\_\_\_\_  
 (03) Object carried by occupant, (specify): \_\_\_\_\_  
 (04) Adaptive/assistive controls, (specify): \_\_\_\_\_  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (08) Other damage source (specify): \_\_\_\_\_  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps): \_\_\_\_\_  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 2  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports): 2  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify): \_\_\_\_\_  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 1  
 (0) Not air bag equipped/air bag not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown
50. Seat Type (this Occupant Position) 02  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify): \_\_\_\_\_  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 4  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track
- Adjustable Seat Track*  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown

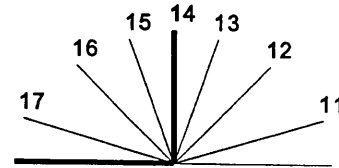


HEAD RESTRAINT AND SEAT EVALUATION *continued*

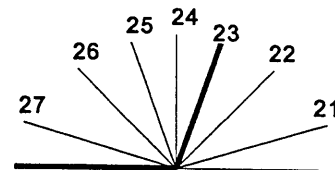
53. Seat Back Incline Prior and Post Impact 23  
 (00) Occupant not seated or no seat  
 (01) Not adjustable

***Upright prior to impact***

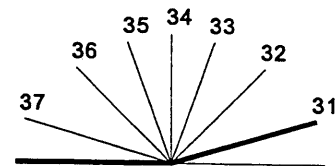
- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

***Slightly reclined prior to impact***

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

***Completely reclined prior to impact***

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position



(99) Unknown

54. Seat Performance (this Occupant Position) 1

- (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_  
 (4) Seat track/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment intrusion, (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

## CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000

(000) No child safety seat

Applicable codes are found in your NASS CDS

Data Collection, Coding and Editing

(950) Built-in child safety seat

(997) Other make/model (specify):

(998) Unknown make/model

(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0

(0) No child safety seat

(1) Infant seat

(2) Toddler seat

(3) Convertible seat

(4) Booster seat - with shield

(5) Booster seat - without shield

(7) Other type child safety seat (specify):

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00

(00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing

(02) Forward facing

(08) Other orientation (specify):

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing

(12) Forward facing

(18) Other orientation (specify):

(19) Unknown orientation

*Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight*

(21) Rear facing

(22) Forward facing

(28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0059. Child Safety Seat Shield Usage 0060. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*

(01) After market harness/shield/tether added, not used

(02) After market harness/shield/tether used

(03) Child safety seat used, but no after market harness/shield/tether added

(09) Unknown if harness/shield/tether added or used

*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used

(12) Harness/shield/tether used

(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used

(22) Harness/shield/tether used

(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES**61. Injury Severity (Police Rating) 2

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

62. Treatment - Mortality 0

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 0

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_
- (9) Unknown

64. Hospital Stay 00

- (00) Not Hospitalized
- \_\_\_\_\_ Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

65. Working Days Lost 00

- \_\_\_\_\_ Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**



**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES****66. Time to Death**00

Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)

- (00) Not fatal  
(96) Fatal - ruled disease  
(99) Unknown

**67. 1st Medically Reported Cause of Death**00**68. 2nd Medically Reported Cause of Death**00**69. 3rd Medically Reported Cause of Death**00

Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death

- (00) Not fatal or no additional causes  
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):

(97) Other result (includes fatal ruled disease) (specify):

(99) Unknown

**70. Number of Recorded Injuries for This Occupant**00

Code the actual number of injuries recorded for this occupant.

- (00) No recorded injuries  
(97) Injured, details unknown  
(99) Unknown if injured

**TRAUMA DATA****71. Glasgow Coma Scale (GCS) Score (at Medical Facility)**00

- (00) Not injured  
(01) Injured - not treated at medical facility  
(02) No GCS Score at medical facility  
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
(97) Injured, details unknown  
(99) Unknown if injured

**72. Was the Occupant Given Blood?**1

- (1) No - blood not given  
(2) Yes - blood given

(specify units):

- (9) Unknown if blood given

**73. Arterial Blood Gases (ABG) - HCO<sub>3</sub>**00

- (00) Not injured  
(01) Injured, ABGs not measured or reported  
(02-50) Code the actual value of the HCO<sub>3</sub>  
(96) ABGs reported, HCO<sub>3</sub> unknown  
(97) Injured, details unknown  
(99) Unknown if injured

**BELT USE DETERMINATION****74. Primary Source of Belt Use Determination**1

- (0) Not equipped/not available/destroyed or rendered inoperative

- (1) Vehicle inspection  
(2) Official injury data  
(3) Driver/occupant interview  
(8) Other (specify):

- (9) Unknown if belt used



## OCCUPANT INJURY FORM

1. ~~Primary Sampling Unit Number~~ \_\_\_\_\_

2. Case Number - Stratum 9 6 1 5

3. Vehicle Number 0 1

4. Occupant Number 0 1

### INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	Body Region	Type of Anatomic Structure	A.I.S. - 90 Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
1st	5. <u>7</u>	6. <u>3</u>	7. <u>9</u>	8. <u>0 2</u>	9. <u>0 2</u>	10. <u>1</u>	11. <u>5</u>	12. <u>1 7 0</u>	13. <u>1</u>	14. <u>1</u>	15. <u>0 0</u>
2nd	16. <u>7</u>	17. <u>2</u>	18. <u>9</u>	19. <u>0 2</u>	20. <u>0 2</u>	21. <u>1</u>	22. <u>8</u>	23. <u>1 7 0</u>	24. <u>1</u>	25. <u>1</u>	26. <u>0 0</u>
3rd	27. <u>7</u>	28. <u>7</u>	29. <u>9</u>	30. <u>0 2</u>	31. <u>0 2</u>	32. <u>1</u>	33. <u>1</u>	34. <u>1 7 0</u>	35. <u>1</u>	36. <u>1</u>	37. <u>0 0</u>
4th	38. <u>7</u>	39. <u>7</u>	40. <u>9</u>	41. <u>0 2</u>	42. <u>0 2</u>	43. <u>1</u>	44. <u>2</u>	45. <u>1 7 0</u>	46. <u>1</u>	47. <u>1</u>	48. <u>0 0</u>
5th	49. ____	50. ____	51. ____	52. ____	53. ____	54. ____	55. ____	56. ____	57. ____	58. ____	59. ____
6th	60. ____	61. ____	62. ____	63. ____	64. ____	65. ____	66. ____	67. ____	68. ____	69. ____	70. ____
7th	71. ____	72. ____	73. ____	74. ____	75. ____	76. ____	77. ____	78. ____	79. ____	80. ____	81. ____
8th	82. ____	83. ____	84. ____	85. ____	86. ____	87. ____	88. ____	89. ____	90. ____	91. ____	92. ____
9th	93. ____	94. ____	95. ____	96. ____	97. ____	98. ____	99. ____	100. ____	101. ____	102. ____	103. ____
10th	104. ____	105. ____	106. ____	107. ____	108. ____	109. ____	110. ____	111. ____	112. ____	113. ____	114. ____

## OCCUPANT INJURY CLASSIFICATION

Body Region	Specific Anatomic Structure	Level of Injury	Aspect
(1) Head		Specific injuries are assigned consecutive two-digit numbers beginning with 02.	(1) Right
(2) Face			(2) Left
(3) Neck	<u>Vessels, Nerves, Organs.</u>		(3) Bilateral
(4) Thorax	<u>Bones, Joints</u> are assigned consecutive two digit numbers beginning with 02.		(4) Central
(5) Abdomen			(5) Anterior
(6) Spine		To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.	(6) Posterior
(7) Upper Extremity			(7) Superior
(8) Lower Extremity			(8) Inferior
(9) Unspecified	The exceptions to this rule apply to:		(9) Unknown
			(0) Whole region
<b>Type of Anatomic Structure</b>	<u>Whole Area</u>		
(1) Whole Area	(02) Skin - Abrasion		
(2) Vessels	(04) Skin - Contusion		
(3) Nerves	(06) Skin - Laceration		
(4) Organs (includes Muscles/ligaments)	(08) Skin - Avulsion		
(5) Skeletal (includes joints)	(10) Amputation		
(6) Head - LOC	(20) Burn		
(9) Skin	(30) Crush		
	(40) Degloving		
	(50) Injury - NFS		
	(90) Trauma, other than mechanical		
	<u>Head - LOC</u>		
	(02) Length of LOC		
	(04) Level		
	(06) of		
	(08) Consciousness		
	(10) Concussion		
	<u>Spine</u>		
	(02) Cervical		
	(04) Thoracic		
	(06) Lumbar		

## Abbreviated Injury Scale

- (1) Minor Injury
- (2) Moderate Injury
- (3) Serious Injury
- (4) Severe Injury
- (5) Critical Injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity

## SOURCE OF INJURY DATA

## INJURY SOURCE

## DIRECT/INDIRECT INJURY

## CONFIDENCE LEVEL

OFFICIAL RECORDS

- (1) Autopsy records with or without hospital/medical records
- (2) Hospital/medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify):
- (9) Police

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source



# OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

Restrained?

☐ No

☐ Yes

Blood Alcohol Level  
(mg/dl)

BAL =

Glasgow Coma  
Scale Score

GCSS =

Units of Blood  
Given

Units =

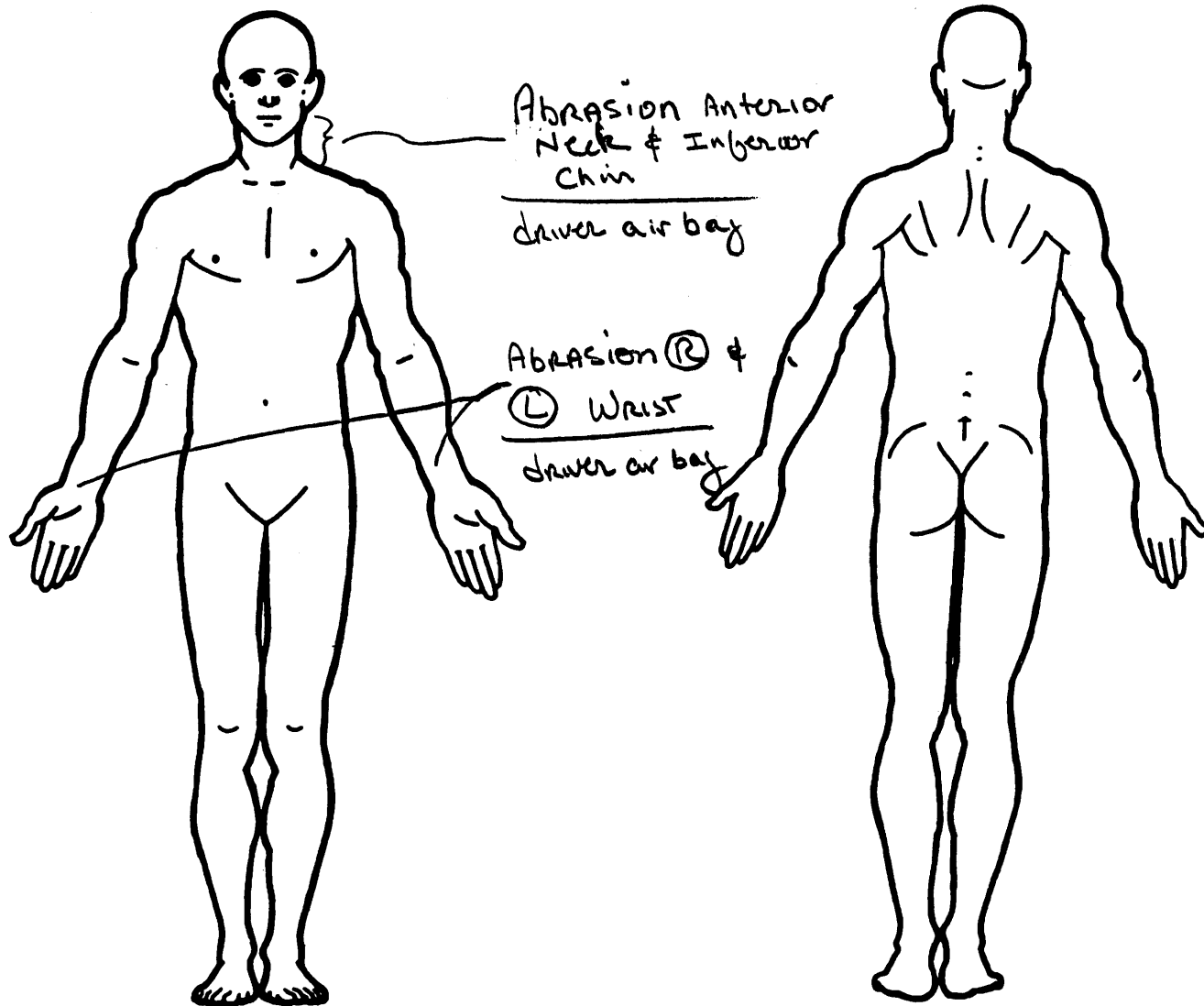
Arterial Blood Gases

pH =

PO<sub>2</sub> =

PCO<sub>2</sub>

HCO<sub>3</sub>





# OCCUPANT ASSESSMENT FORM

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

2. Case Number - Stratum

3. Vehicle Number

4. Occupant Number

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex

(1) Male

(2) Female-not reported pregnant

(3) Female-pregnant-1st trimester(1st-3rd month)

(4) Female-pregnant-2nd trimester(4th-6th month)

(5) Female-pregnant-3rd trimester(7th-9th month)

(6) Female-pregnant-term unknown

(9) Unknown

7. Occupant's Height

Code actual height to the nearest  
centimeter.

(999) Unknown

21 inches X 2.54 = 53 centimeters

8. Occupant's Weight

Code actual weight to the nearest  
kilogram.

(999) Unknown

8 pounds X .4536 = 4 kilograms

9. Occupant's Role

(1) Driver

(2) Passenger

(9) Unknown

## OCCUPANT'S SEATING

10. Occupant's Seat Position

Front Seat

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

Second Seat

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

Third Seat

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

Fourth Seat

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant's Posture

(0) Normal posture

Abnormal posture

(1) Kneeling or standing on seat

(2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with  
another occupant or to look out a rear  
window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in  
front of seat

(8) Other abnormal posture (specify):

(9) Unknown

## EJECTION/ENTRAPMENT

## 12. Ejection

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

0

## 13. Ejection Area

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

0

## 14. Ejection Medium

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

0

## 15. Medium Status (Immediately Prior To Impact)

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

0

## 16. Entrapment

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

0

## 17. Occupant Mobility

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or not oriented to time or place
- (2) Removed from vehicle due to perceived serious injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (8) Removed from vehicle for other reasons  
(specify): \_\_\_\_\_
- (9) Unknown

2



## BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 14

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

(02) Shoulder belt

(03) Lap belt

(04) Lap and shoulder belt

(05) Belt used—type unknown

(08) Other belt used (specify):

(12) Shoulder belt used with child safety seat

(13) Lap belt used with child safety seat

(14) Lap and shoulder belt used with child safety seat

(15) Belt used with child safety seat—type unknown

(18) Other belt used with child safety seat (specify):

(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 7

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

(3) Shoulder belt worn under arm

(4) Shoulder belt worn behind back or seat

(5) Belt worn around more than one person

(6) Lap belt worn on abdomen

(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Manual Shoulder Belt Upper Anchorage Adjustment 4

- (0) No manual shoulder belt
- (1) No upper anchorage adjustment for manual shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

(2) In full up position

(3) In mid position

(4) In full down position

(5) Position unknown

(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 0

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

(4) Automatic belts destroyed or rendered inoperative

(9) Unknown

24. Automatic (Passive) Belt System Use 0

(0) Not equipped/not available/destroyed or rendered inoperative

(1) Automatic belt in use

(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):

(3) Automatic belt use unknown

(9) Unknown

25. Automatic (Passive) Belt System Type 0

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0

(0) Not equipped/not available/not used

(1) Automatic belt used properly

(2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

(3) Automatic shoulder belt worn under arm

(4) Automatic shoulder belt worn behind back

(5) Automatic belt worn around more than one person

(6) Lap portion of automatic belt worn on abdomen

(7) Automatic lap and shoulder belt or

automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):

(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0

(0) Not equipped/not available/not in use

(1) No automatic belt failure(s)

(2) Torn webbing (stretched webbing not included)

(3) Broken buckle or latchplate

(4) Upper anchorage separated

(5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other automatic belt failure (specify):

(9) Unknown

## POLICE REPORTED RESTRAINT USE

## AIR BAG SYSTEM FUNCTION

28. Police Reported Belt Use 6

- (0) None used  
 (1) Police did not indicate belt use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Automatic belt  
 (8) Other type belt, (specify):

(9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 1

- (0) No air bag available  
 (1) Police did not indicate air bag availability/function  
 (2) Deployed  
 (3) Not deployed  
 (4) Unknown if deployed  
 (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

- ☒ Vehicle inspection  
☐ Official injury data  
☐ Driver/occupant interview  
☐ Other (specify):

☐ Unknown if belt used

30. Frontal Air Bag System 1

Availability/Function

(This Occupant Position)

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

(2) Air bag disconnected (specify):

(3) Air bag not reinstalled

(9) Unknown

31. Frontal Air Bag System Deployment 1

(This Occupant Position)

- (0) Not equipped/not available  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

32. Other Than First Seat Frontal Air Bag 0

Availability/Function

(This Occupant Position)

- (0) Not equipped/not available

(1) Air bag

*Non-functional*

(2) Air bag disconnected (specify):

(3) Air bag not reinstalled

(9) Unknown

*Specify type of "other" air bag present:*

33. Air Bag(s) Deployment, Other Than First 1

Seat Frontal (This Occupant Position)

- (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

34. Are There Indications of Air Bag System 1

Failure?

(This Occupant Position)

- (0) Not equipped/not available

(1) No

(2) Yes (specify):

(9) Unknown

## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 2

- (0) Not equipped/not available  
(1) No previous accidents

Yes

- (2) Previous accident(s) without deployment(s)  
(3) One previous accident with deployment  
(4) More than one previous accident with at least one deployment  
(8) Previous accidents, unknown deployment status  
(9) Unknown

36. Type of Air Bag 1

- (0) Not equipped/not available  
(1) Original manufacturer installed system  
(2) Retrofitted air bag  
(3) Replacement air bag  
(8) Unknown type of air bag  
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1

- (0) Not equipped/not available  
(1) No prior maintenance  
(2) Yes, prior maintenance (specify):  
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01

- (00) Not equipped/not available  
Code the accident event sequence number that initiated the air bag deployment  
(96) Deployed, unknown event  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

39. CDC For Air Bag Deployment Impact 1

- (0) Not equipped/not available  
(1) Highest delta V  
(2) Second highest delta V  
(3) Other non-coded delta V (specify):  
(6) Deployed, unknown event  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + 0 25

- (000) Not equipped/not available  
Code the value of the delta V for the impact that initiated the air bag deployment  
(996) Deployment, unknown longitudinal Delta V  
(997) Not deployed  
(998) Unknown if deployed  
(999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2

- (0) Not equipped/not available  
(1) No  
(2) Yes  
(3) Deployed, unknown if flap(s) opened at designated tear points  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 2

- (0) Not equipped/not available  
(1) No  
(2) Yes (specify): scuffed / abraded  
(3) Deployed, unknown if air bag module cover flap(s) damaged  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

43. Was There Damage To The Air Bag? 01

- (00) Not equipped/not available  
(01) Not damaged

Yes - Air Bag Damage

- (02) Ruptured  
(03) Cut  
(04) Torn  
(05) Holed  
(06) Burned  
(07) Abraded  
(88) Other damage (specify):  
(95) Damaged, details unknown  
(96) Deployed, unknown if damaged  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown



**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued*

44. Source of Air Bag Damage 01  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify):  
 (03) Object carried by occupant, (specify):  
 (04) Adaptive/assistive controls, (specify):  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (08) Other damage source (specify):  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps):  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 2  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports):  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 1  
 (0) Not air bag equipped/air bag not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION**

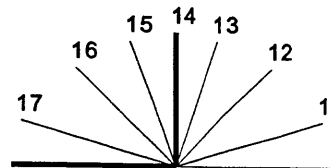
49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 (9) Unknown
50. Seat Type (this Occupant Position) 02  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify):  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify):  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 3  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track
- Adjustable Seat Track*  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION *continued*

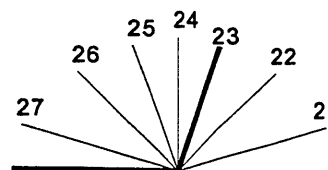
53. Seat Back Incline Prior and Post Impact 2 3  
 (00) Occupant not seated or no seat  
 (01) Not adjustable

***Upright prior to impact***

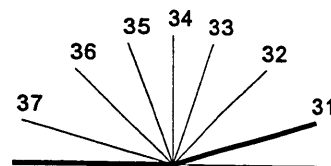
- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

***Slightly reclined prior to impact***

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

***Completely reclined prior to impact***

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position



(99) Unknown

54. Seat Performance (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_  
 (4) Seat track/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment intrusion, (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

## CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 115  
 (000) No child safety seat  
 Applicable codes are found in your NASS CDS  
 Data Collection, Coding and Editing  
 (950) Built-in child safety seat  
 (997) Other make/model (specify):

(998) Unknown make/model  
 (999) Unknown if child safety seat used

56. Type of Child Safety Seat 1  
 (0) No child safety seat  
 (1) Infant seat  
 (2) Toddler seat  
 (3) Convertible seat  
 (4) Booster seat - with shield  
 (5) Booster seat - without shield  
 (7) Other type child safety seat (specify):

(8) Unknown child safety seat type  
 (9) Unknown if child safety seat used

57. Child Safety Seat Orientation 01  
 (00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing  
 (02) Forward facing  
 (08) Other orientation (specify):

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing  
 (12) Forward facing  
 (18) Other orientation (specify):

(19) Unknown orientation

*Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight*

(21) Rear facing  
 (22) Forward facing  
 (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 12

59. Child Safety Seat Shield Usage 01

60. Child Safety Seat Tether Usage 01

Note: Options below applicable to  
 Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*

(01) After market harness/shield/tether  
 added, not used  
 (02) After market harness/shield/tether used  
 (03) Child safety seat used, but no after market  
 harness/shield/tether added  
 (09) Unknown if harness/shield/tether  
 added or used

*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used  
 (12) Harness/shield/tether used  
 (19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used  
 (22) Harness/shield/tether used  
 (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used



**INJURY CONSEQUENCES**

61. Injury Severity (Police Rating)

4

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

62. Treatment - Mortality

1

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_

(9) Unknown

64. Hospital Stay

02

(00) Not Hospitalized

\_\_\_\_\_ Code the number of days (up through 60) that the occupant stayed in hospital.

- (61) 61 days or more
- (99) Unknown

65. Working Days Lost

00

\_\_\_\_\_ Code the number of days (up through 60) that the occupant lost from work due to the accident

- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**

**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES****TRAUMA DATA****66. Time to Death** \_\_\_\_\_

\_\_\_\_\_ Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)

- (00) Not fatal  
(96) Fatal - ruled disease  
(99) Unknown

**67. 1st Medically Reported Cause of Death** \_\_\_\_\_**68. 2nd Medically Reported Cause of Death** \_\_\_\_\_**69. 3rd Medically Reported Cause of Death** \_\_\_\_\_

\_\_\_\_\_ Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death

- (00) Not fatal or no additional causes  
(96) Mode of death given but specific injuries are not linked to cause of death. (specify): \_\_\_\_\_

- (97) Other result (includes fatal ruled disease) (specify): \_\_\_\_\_

- (99) Unknown

**70. Number of Recorded Injuries for This Occupant** \_\_\_\_\_

\_\_\_\_\_ Code the actual number of injuries recorded for this occupant.

- (00) No recorded injuries  
(97) Injured, details unknown  
(99) Unknown if injured

**71. Glasgow Coma Scale (GCS) Score** \_\_\_\_\_  
(at Medical Facility)

- (00) Not injured  
(01) Injured - not treated at medical facility  
(02) No GCS Score at medical facility  
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
(97) Injured, details unknown  
(99) Unknown if injured

**72. Was the Occupant Given Blood?** \_\_\_\_\_

- (1) No - blood not given  
(2) Yes - blood given

(specify units): \_\_\_\_\_

- (9) Unknown if blood given

**73. Arterial Blood Gases (ABG) - HCO<sub>3</sub>** \_\_\_\_\_

- (00) Not injured  
(01) Injured, ABGs not measured or reported  
(02-50) Code the actual value of the HCO<sub>3</sub>  
(96) ABGs reported, HCO<sub>3</sub> unknown  
(97) Injured, details unknown  
(99) Unknown if injured

**BELT USE DETERMINATION****74. Primary Source of Belt Use Determination** \_\_\_\_\_

- (0) Not equipped/not available/destroyed or rendered inoperative

- (1) Vehicle inspection  
(2) Official injury data  
(3) Driver/occupant interview  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown if belt used



U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

# OCCUPANT INJURY FORM

Form Approved  
O.M.B. No. 2127-0021  
NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

3. Vehicle Number

01

2. Case Number - Stratum

9615

4. Occupant Number

02

## INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

		A.I.S. - 90											
Source of Injury Data	Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number			
Brain Swelling													
1st	5. 7	6. 1	7. 4	8. 04	9. 50	10. 3	11. 6	12. 180	13. 2	14. 1	15. 00		
Skull Fractures													
2nd	16. 7	17. 1	18. 5	19. 00	20. 00	21. 2	22. 9	23. 180	24. 2	25. 1	26. 00		
3rd	27. ___	28. ___	29. ___	30. ___	31. ___	32. ___	33. ___	34. ___	35. ___	36. ___	37. ___		
4th	38. ___	39. ___	40. ___	41. ___	42. ___	43. ___	44. ___	45. ___	46. ___	47. ___	48. ___		
5th	49. ___	50. ___	51. ___	52. ___	53. ___	54. ___	55. ___	56. ___	57. ___	58. ___	59. ___		
6th	60. ___	61. ___	62. ___	63. ___	64. ___	65. ___	66. ___	67. ___	68. ___	69. ___	70. ___		
7th	71. ___	72. ___	73. ___	74. ___	75. ___	76. ___	77. ___	78. ___	79. ___	80. ___	81. ___		
8th	82. ___	83. ___	84. ___	85. ___	86. ___	87. ___	88. ___	89. ___	90. ___	91. ___	92. ___		
9th	93. ___	94. ___	95. ___	96. ___	97. ___	98. ___	99. ___	100. ___	101. ___	102. ___	103. ___		
10th	104. ___	105. ___	106. ___	107. ___	108. ___	109. ___	110. ___	111. ___	112. ___	113. ___	114. ___		



## OCCUPANT INJURY CLASSIFICATION

Body Region	Specific Anatomic Structure	Level of Injury	Aspect
(1) Head		Specific injuries are assigned consecutive two-digit numbers beginning with 02.	(1) Right
(2) Face			(2) Left
(3) Neck	<u>Vessels, Nerves, Organs,</u>		(3) Bilateral
(4) Thorax	<u>Bones, Joints</u> are assigned consecutive two digit numbers beginning with 02.		(4) Central
(5) Abdomen		To the extent possible, within the organizational framework of the AIS, 00	(5) Anterior
(6) Spine		is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure.	(6) Posterior
(7) Upper Extremity		99 is assigned to any injury NFS as to lesion or severity.	(7) Superior
(8) Lower Extremity			(8) Inferior
(9) Unspecified	The exceptions to this rule apply to:		(9) Unknown
			(0) Whole region
<b>Type of Anatomic Structure</b>	<u>Whole Area</u>		
(1) Whole Area	(02) Skin - Abrasion		
(2) Vessels	(04) Skin - Contusion		
(3) Nerves	(06) Skin - Laceration		
(4) Organs (includes Muscles/ligaments)	(08) Skin - Avulsion		
(5) Skeletal (includes joints)	(10) Amputation		
(6) Head - LOC	(20) Burn		
(9) Skin	(30) Crush		
	(40) Degloving		
	(50) Injury - NFS		
	(90) Trauma, other than mechanical		
	<u>Head - LOC</u>		
	(02) Length of LOC		
	(04) Level of		
	(06) of		
	(08) Consciousness		
	(10) Concussion		
	<u>Spine</u>		
	(02) Cervical		
	(04) Thoracic		
	(06) Lumbar		

## Abbreviated Injury Scale

- |                               |
|-------------------------------|
| (1) Minor Injury              |
| (2) Moderate Injury           |
| (3) Serious Injury            |
| (4) Severe Injury             |
| (5) Critical Injury           |
| (6) Maximum (untreatable)     |
| (7) Injured, unknown severity |

SOURCE OF INJURY DATA	INJURY SOURCE CONFIDENCE LEVEL	DIRECT/INDIRECT INJURY
<u>OFFICIAL RECORDS</u> (1) Autopsy records with or without hospital/medical records (2) Hospital/medical records other than emergency room (e.g., discharge summary) (3) Emergency room records only (including associated X-rays or other lab reports) (4) Private physician, walk-in or emergency clinic  <u>UNOFFICIAL RECORDS</u> (5) Lay coroner report (6) E.M.S. personnel (7) Interviewee (8) Other source (specify): _____ (9) Police	(1) Certain (2) Probable (3) Possible (9) Unknown	(1) Direct contact injury (2) Indirect contact injury (3) Noncontact injury (7) Injured, unknown source

## INJURY SOURCES

### FRONT

- (001) Windshield
- (002) Mirror
- (003) Sunvisor
- (004) Steering wheel rim
- (005) Steering wheel hub/spoke
- (006) Steering wheel (combination of codes 004 and 005)
- (007) Steering column, transmission selector lever, other attachment
- (008) Cellular telephone or CB radio
- (009) Add on equipment (e.g., tape deck, air conditioner)
- (010) Left instrument panel and below
- (011) Center instrument panel and below
- (012) Right instrument panel and below
- (013) Glove compartment door
- (014) Knee bolster
- (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (017) Windshield reinforced by exterior object (specify): \_\_\_\_\_
- (019) Other front object (specify): \_\_\_\_\_

### LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests
- (052) Left side hardware or armrest
- (053) Left A (A1/A2)-pillar
- (054) Left B-pillar
- (055) Other left pillar (specify): \_\_\_\_\_
- (056) Left side window glass
- (057) Left side window frame
- (058) Left side window sill
- (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (060) Other left side object (specify): \_\_\_\_\_

### RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests

- (102) Right side hardware or armrest
- (103) Right A (A1/A2)-pillar
- (104) Right B-pillar
- (105) Other right pillar (specify): \_\_\_\_\_
- (106) Right side window glass
- (107) Right side window frame
- (108) Right side window sill
- (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (110) Other right side object (specify): \_\_\_\_\_

### INTERIOR

- (151) Seat, back support
- (152) Belt restraint webbing/buckle
- (153) Belt restraint B-pillar or door frame attachment point
- (154) Other restraint system component (specify): \_\_\_\_\_
- (155) Head restraint system
- (160) Other occupants (specify): \_\_\_\_\_
- (161) Interior loose objects
- (162) Child safety seat (specify): \_\_\_\_\_
- (163) Other interior object (specify): \_\_\_\_\_

### AIR BAG

- (170) Air bag-driver side
- (171) Air bag-driver side and eyewear
- (172) Air bag-driver side and jewelry
- (173) Air bag-driver side and object held
- (174) Air bag-driver side and object in mouth
- (175) Air bag compartment cover-driver side
- (176) Air bag compartment cover-driver side and eyewear
- (177) Air bag compartment cover-driver side and jewelry
- (178) Air bag compartment cover-driver side and object held
- (179) Air bag compartment cover-driver side and object in mouth
- (180) Air bag-passenger side
- (181) Air bag-passenger side and eyewear
- (182) Air bag-passenger side and jewelry

- (183) Air bag-passenger side and object held
- (184) Air bag-passenger side and object in mouth
- (185) Air bag compartment cover-passenger side
- (186) Air bag compartment cover-passenger side and eyewear
- (187) Air bag compartment cover-passenger side and jewelry
- (188) Air bag compartment cover-passenger side and object held
- (189) Air bag compartment cover-passenger side and object in mouth
- (190) Other air bag (specify) \_\_\_\_\_
- (195) Other air bag compartment cover (specify) \_\_\_\_\_

### ROOF

- (201) Front header
- (202) Rear header
- (203) Roof left side rail
- (204) Roof right side rail
- (205) Roof or convertible top

### FLOOR

- (251) Floor (including toe pan)
- (252) Floor or console mounted transmission lever, including console
- (253) Parking brake handle
- (254) Foot controls including parking brake

### REAR

- (301) Backlight (rear window)
- (302) Backlight storage rack, door, etc.
- (303) Other rear object (specify): \_\_\_\_\_

### ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration
- (402) Steering control devices (attached to OEM steering wheel)
- (403) Steering knob attached to steering wheel
- (405) Replacement steering wheel (i.e., reduced diameter)
- (406) Joy stick steering controls
- (407) Wheelchair tie-downs
- (408) Modification to seat belts, (specify): \_\_\_\_\_
- (409) Additional or relocated switches, (specify): \_\_\_\_\_
- (410) Raised roof

- (411) Wall mounted head rest (used behind wheel chair)
- (412) Other adaptive device (specify): \_\_\_\_\_

### EXTERIOR of OCCUPANT'S VEHICLE

- (451) Hood
- (452) Outside hardware (e.g., outside mirror, antenna)
- (453) Other exterior surface or tires (specify): \_\_\_\_\_
- (454) Unknown exterior objects

### EXTERIOR OF OTHER MOTOR VEHICLE

- (501) Front bumper
- (502) Hood edge
- (503) Other front of vehicle (specify): \_\_\_\_\_
- (504) Hood
- (505) Hood ornament
- (506) Windshield, roof rail, A-pillar
- (507) Side surface
- (508) Side mirrors
- (509) Other side protrusions (specify): \_\_\_\_\_
- (510) Rear surface
- (511) Undercarriage
- (512) Tires and wheels
- (513) Other exterior of other motor vehicle (specify): \_\_\_\_\_
- (514) Unknown exterior of other motor vehicle

### OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

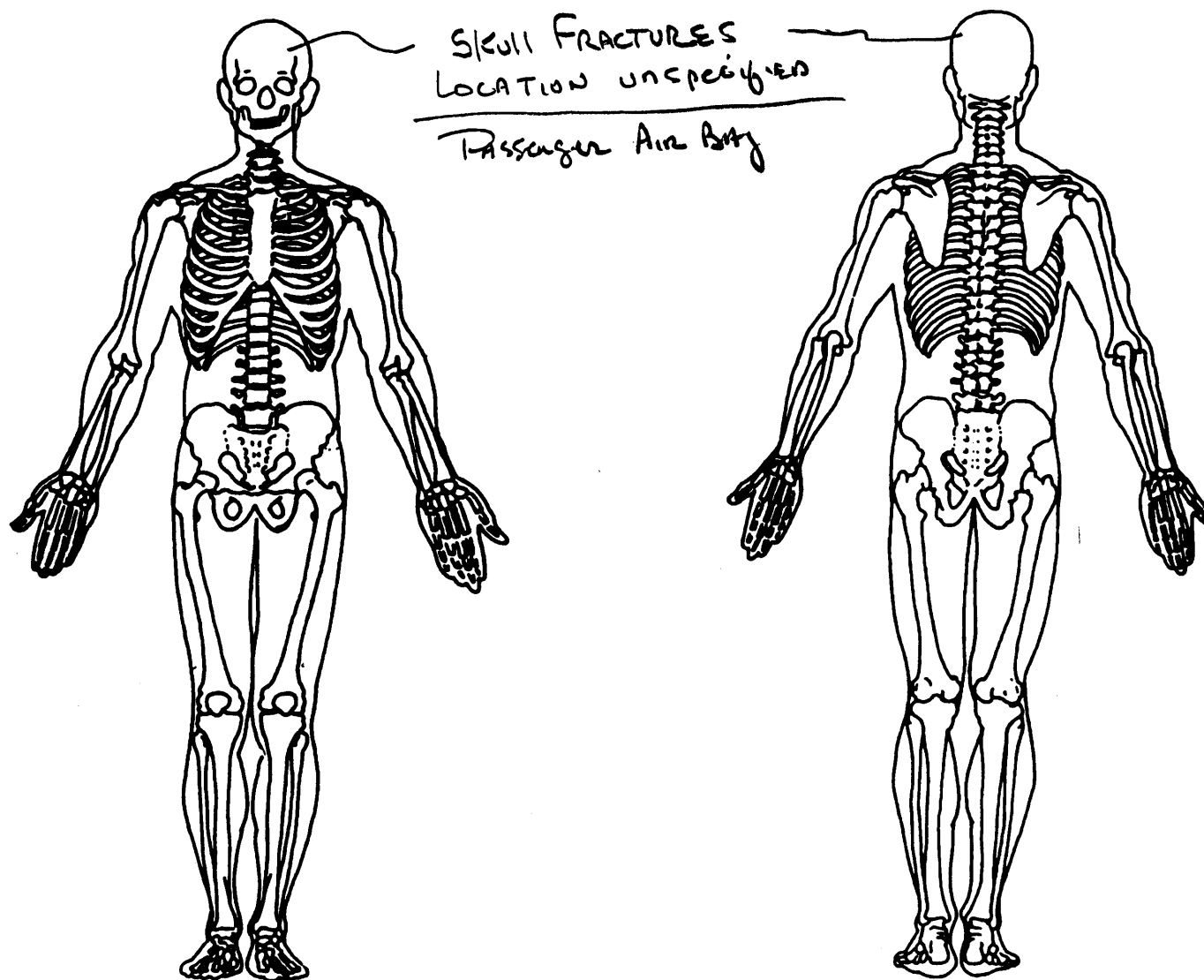
- (551) Ground
- (598) Other vehicle or object (specify): \_\_\_\_\_
- (599) Unknown vehicle or object

### NONCONTACT INJURY

- (601) Fire in vehicle
- (602) Flying glass
- (603) Other noncontact injury source (specify): \_\_\_\_\_
- (604) Air bag exhaust gases
- (697) Injured, unknown source

## OFFICIAL INJURY DATA — SKELETAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



## OFFICIAL INJURY DATA — INTERNAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

